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## INVENTORY AND ANALYSIS

### Demographic Characteristics and Projections

This portion of the State Route 85 Corridor Area Plan includes analysis of existing demographic and land use conditions.

### Planning Area Growth and Change

The State Route 85 Corridor Area Plan represents a new planning area in Maricopa County. The planning area encompasses approximately 360 square miles from Interstate 10 south to Interstate 8, extending five miles west and east of State Route 85. Portions of the Town of Buckeye and the Town of Gila Bend are included in the study area.

### Population and Demographic Characteristics: State Route 85 Corridor Planning Area

This section highlights historic and projected population and housing unit data to the year 2020. Comparative 1990 and 2000 US Census data are reviewed for both the planning area and for Maricopa County as a whole. Population projections are derived from Maricopa County and Maricopa Association of Governments (MAG) models and estimates are based on present and historic census figures and trends.

**Table 1** shows actual and projected resident population, including those housed in group quarters. **Table 2** displays the number of dwelling units in the planning area and in Maricopa County. Included in this table is the projected number of dwelling units for 2010 and 2020.

<b>Table 1 Resident Population (based on 1990 Census) State Route 85 Corridor Planning Area 1990-2020</b>				
	<b>Census 1990</b>	<b>Census 2000</b>	<b>Projection 2010</b>	<b>Projection 2020</b>
<b>State Route 85 Corridor Planning Area</b>	11,861	15,174 <u>15,273</u> <sup>1,2</sup>	15,999 <sup>1</sup>	32,680 <sup>1</sup>
<b>Maricopa County</b>	2,122,101 <sup>2</sup>	3,072,149 <sup>2</sup>	3,709,566 <sup>3</sup>	4,516,090 <sup>3</sup>
<b>% of Total Population</b>	5%	5%	4%	7%

1 Includes population in group quarters

2 US Census Bureau, 1990 and 2000

3 Arizona Department of Economic Security, 1997

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**Table 2 Resident Dwelling Units  
State Route 85 Corridor Planning Area 1990-2020**

	Census 1990	Census 2000	Projection 2010	Projection 2020
<b>State Route 85 Corridor Planning Area</b>	4,952 <sup>1</sup>	5,5225,547 <sup>1,2</sup>	5,866 <sup>1</sup>	12,873 <sup>1</sup>
<b>Maricopa County</b>	952,041 <sup>2</sup>	1,250,231 <sup>2</sup>	1,483,826 <sup>3</sup>	1,806,436 <sup>3</sup>
<b>% of Total Dwelling Units</b>	5%	4%	4%	7%

1 MAG 1990 population and projections

2 US Census Bureau, 1990 and 2000

3 Based on year 2000 persons per dwelling unit

### Historical Population Analysis

In 1990, the State Route 85 Corridor Planning Area's population was 11,861. By 2000, total population had increased 28-29 percent to 15,17415,273. These numbers reflect population in unincorporated portions of the planning area, as well as the Town of Buckeye and the Town of Gila Bend. MOST OF THE POPULATION INCREASE FOR THE TOWN OF BUCKEYE IS ATTRIBUTABLE TO LEWIS STATE PRISON GROUP QUARTERS POPULATION.

### Historical Housing Units Analysis

In 1990, there were 4,952 residential dwelling units in the planning area. Dwelling units include all residential dwellings, whether occupied or unoccupied. By 2000, residential dwelling units had increased 12 percent to 5,5225,547. These numbers reflect residential dwelling units in unincorporated portions of the planning area, as well as the Town of Buckeye and the Town of Gila Bend. **Figure 2** illustrates residential dwelling units that were completed from 1990 through 2001. However, data for the period from June 30, 1999 through November 30, 1999 are unavailable and have not been included.

### Future Population and Housing Trends

Projections describing the future population in the planning area are based on past trends. The projections are important for creating a vision of what the planning area will be like in the future. **Table 3** shows a 104 percent increase in planning area population from 2010 (15,999 residents) to 2020 (32,680 residents).

In 2000, there were approximately 15,17415,273 residents in the planning area. As shown in **Table 4**, there were slightly more males (55 percent) than females (45 percent) in 2000 and over half the population was between the ages of 18 and 54 (not including those housed in group quarters). **Table 5** illustrates that the area's median household income of approximately \$31,031 is less than the comparable County median of approximately \$40,134. Median income for the planning area is derived from the most recent data available, taken from MAG's Population, Housing Unit and Income Data by Traffic Analysis Zone (TAZ), 1990-2020, March 1993. More recent data for the planning area are unavailable.

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Maricopa Association of Governments (MAG) projections show that planning area population is expected to grow from approximately ~~15,200~~15,300 in the year 2000 to approximately 32,700 in the year 2020. This represents an increase of ~~115~~114 percent in 20 years. By comparison, Maricopa County population is expected to increase approximately 22 percent in the same 20-year period. Accordingly, residential dwelling units should increase during the same time period from approximately 5,850 units to approximately 12,800 units, assuming 2.5 persons per dwelling unit (**Table 6**). The Town of Buckeye and the Town of Gila Bend accounted for 69 percent of the area's 2000 population. The combined population for both towns is 10,477 (including those housed in group quarters).

It is important to note that Arizona Department of Economic Security (DES) population projections for the Town of Buckeye and the Town of Gila Bend municipal planning areas differ from MAG projections. Combined population for both municipal planning areas for 2020 is projected at 85,079, which is considerably higher than MAG projections for the entire planning area. Additionally, the Town of Buckeye General Plan Update indicates that future population could be 500,000. Given these conflicting population projections, it is difficult to determine whether the planning area will experience normal or significant growth in the future.

Additionally, the Buckeye and Gila Bend General Plans anticipate a combined 2020 population of 34,400, bringing the total planning area projected population for 2020 to approximately 41,800. However, planning for Maricopa County has historically used MAG population projections.

**Table 3    Population Projections 2010-2020  
State Route 85 Corridor Planning Area**

	<b>Census 2000</b>	<b>Projection 2010</b>	<b>Projection 2020</b>
<b>State Route 85 Corridor Planning Area</b>	<del>15,174</del> <u>15,273</u> <sup>2,3</sup>	15,999 <sup>1,2</sup>	32,680 <sup>1,2</sup>
<b>Maricopa County</b>	3,072,149 <sup>3</sup>	3,709,566 <sup>4</sup>	4,516,090 <sup>4</sup>
<b>% of Total Population</b>	5%	4%	7%

1 MAG 1990 population and projections

2 Includes population in group quarters

3 US Census Bureau, 2000

4 Arizona Department of Economic Security, 1997

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**Table 4 Population Distribution By Age (by percentage based on 1990 Census) State Route 85 Corridor Planning Area**

	Male	Female	Under 5	5-17	18-54	55-85	85+
<b>State Route 85 Corridor Planning Area</b>	55%	45%	7%	21%	57%	15%	< 1%
<b>Maricopa County</b>	50%	50%	8%	19%	54%	18%	1%

Source: US Census Bureau, 1990

**Table 5 Median Income (based on 1989 income) State Route 85 Corridor Planning Area**

	Median Income
<b>State Route 85 Corridor Planning Area</b>	\$31,031 <sup>1</sup>
<b>Maricopa County</b>	\$40,134 <sup>2</sup>

1 MAG Population, Housing Unit, and Income Data by Traffic Analysis Zone (TAZ), 1990-2020, March 1993

2 US Census Bureau, 2000 (based on 1997 estimate)

**Table 6 Persons Per Dwelling Unit 2000-2020 State Route 85 Corridor Planning Area**

	Census 2000	Projected 2010	Projected 2020
<b>State Route 85 Corridor Planning Area</b>	<del>2.72.4</del>	<del>2.72.4</del>	<del>2.52.4</del>
<b>Maricopa County</b>	2.5	2.5	2.5

Source: MAG 1990 population and projections

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## LAND USE

### Existing Land Use and Development

The State Route 85 Corridor planning area is a large area, with diverse land use patterns. Density and land use patterns vary from urban to rural and from public to private ownership. To simplify the land use analysis, several issues are examined:

1. Land Development Patterns
2. Zoning Regulations
3. Public Land Ownership
4. Public Facilities and Utilities
5. Special Planning Concerns

#### *Land Development Patterns*

The northern portion of the area consists primarily of privately owned land, much of which has been historically used for agricultural purposes. About half of the area between Johnson Road and Rainbow Road, north of Elliot Road and Old US 80, is unincorporated, while the remainder is within the Town of Buckeye. Once a relatively small community, Buckeye is becoming an important residential, commercial, and employment center. Incorporated in 1929 with 528 acres, annexation has become a key tool in increasing Buckeye town limits. In 1978, Buckeye adopted a strip annexation that encompassed a large area surrounding the town. The boundaries of this annexation are shown in **Figure 3 - Town of Buckeye Annexations**, and extend west to about 315<sup>th</sup> Avenue, north to McDowell Road, east to Perryville Road, and south to the Gila River. In the 1980s, Buckeye annexed approximately 8,000 acres. Aggressive annexation continued in the 1990s, when about 72,000 acres were added to the town limits, including 3,185 acres at State Route 85 and Riggs Road outside the boundaries of the strip annexation. The Lewis State Prison, the Southwest Regional Juvenile Correctional Complex, and the Southwest Regional Landfill are located at this site. In 2000 and 2001, approximately 15,200 acres were annexed by Buckeye. So far in 2002, about 5,500 acres have been annexed, including 3,900 acres south of State Route 85 and Riggs Road for the site of the City of Phoenix landfill. The Town of Buckeye presently encompasses approximately ~~101,000 acres~~ **159 SQUARE MILES**.

The planning area south of the Gila River and north of El Paso Gasline Road contains Buckeye Hills and the 4,474 acre Buckeye Hills ~~Regional Park~~ **RECREATION AREA**. Undeveloped Sonoran Desert combines with natural rolling hills to make up a large undisturbed area in this portion of the planning area. Most of the land in this area is managed by the United States Bureau of Land Management (BLM), with the exception of some privately owned land along the Gila River, a wildlife area managed by Arizona Game and Fish Department (AGFD), and other land managed by Arizona State Land Department.

South of the El Paso Gasline Road to the northern border of the Town of Gila Bend, the planning area is composed primarily of agricultural land but includes low density residential development, the North Maricopa Mountains Wilderness Area, the Sonoran Desert National Monument, and a cluster of development east and west of State Route 85 and south of El Paso Gasline Road that includes Lewis State Prison, the Southwest Regional Juvenile Correctional Complex, and Southwest Regional Landfill. This area consists primarily of privately owned unincorporated land but also includes the Town of Gila Bend, the Gila Bend Indian Community,

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and state and federally managed land. The Town of Gila Bend incorporated in July 1962 with 1,837 acres and through annexation, town limits have increased to approximately 18,850 acres.

### *Zoning Regulations*

The planning area includes various zoning districts that Maricopa County enforces through its adopted zoning ordinance. Established zoning district categories, along with a zoning map (**Figure 15**), can be found in **Appendix B, Generalized Existing Zoning**.

### *Public Land Ownership*

**Figure 4 - Land Ownership** identifies publicly held land in the planning area. Public land includes areas managed by the federal government, State of Arizona, and Maricopa County.

#### A. Federal Land

The BLM administers most of the federal land in the planning area. The majority of the 106,630 acres of BLM land is located south of the Gila River. Most of this land is undeveloped and in its natural state, protected as part of the Sonoran Desert National Monument, although numerous grazing claims are active.

However, some BLM land located between the Gila River and El Paso Natural Gasline Road, between State Route 85 and the Sonoran Desert National Monument, and in the foothills of the Gila Bend Mountains northwest of the Town of Gila Bend is not protected and is administered through a Resource Management Plan, as directed by the 1976 Federal Land Policy and Management Act. This law established policy for the United States to retain public lands in federal ownership unless it is determined, through land use planning, that disposal of particular parcels will serve the national interest. Such parcels of land are suitable for sale if they meet one of three criteria: 1) they are scattered, isolated tracts, difficult or uneconomic to manage; 2) they were acquired for a specific purpose and are no longer needed for that purpose; or 3) disposal of the land will serve important public objectives, such as community expansion and economic development. The disposal of BLM land is authorized through sales and exchanges as directed by the 1976 Federal Land Policy and Management Act. Typically, BLM does not offer much land for sale because of the 1976 congressional mandate to retain most of these lands in public ownership. However, land sales must be done under competitive bidding procedures, unless determined otherwise by the Secretary of the Interior (Secretary). Consideration is given to the following potential purchasers: 1) the State in which the land is located; 2) the local government entities in the vicinity of the land; 3) adjoining landowners; 4) individuals; and 5) any other person. The Secretary has 30 days to accept or reject any written offers to purchase land.

Public lands may be exchanged by BLM for lands owned by corporations, individuals, states or local governments. The lands to be exchanged must be of equal monetary value and located within the same state. Through exchanges, non-Federal parties can acquire lands. The advantages of land exchanges include placing public lands in private ownership for local needs, consolidating scattered tracts of land for more efficient and less costly management of resources, and protection of environmentally sensitive lands. Some examples of these exchanges include lands in San Pedro National Riparian Conservation Area, Cienega National Conservation Area, Agua Fria National Monument, Silver Saddle Ranch in Nevada, and desert tortoise habitat in the St. George, Utah area. In the past, large areas of land exchanged through BLM have also been developed as towns, portions of towns, and master planned

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developments, thereby dramatically increasing the value of the land after the exchange by changing the existing use of the land from rural to residential, commercial, and/or industrial. Some examples of these exchanges include the lands on which the communities of Fountain Hills and Mobile, parts of Peoria, AND Estrella Mountain Ranch and Sun Valley have been developed, AND WHERE SUN VALLEY WILL BE DEVELOPED IN THE FUTURE. A more recent example of a proposed land exchange would increase sensitive and valuable lands for riparian plant and animal species managed by BLM in Cochise, Yavapai, Pinal, Pima, Maricopa, and Santa Cruz counties, while creating private lands near Dewey, Humboldt, and Mayer in Yavapai County.

The land exchange process consists of BLM assessing the feasibility of the proposed land exchange. Both parties then sign a nonbonding agreement to the exchange. A review of title, appraisals, and environmental issues and a public review and comment period should take place. Finally, the title evidence and land status are reviewed and a Federal patent is issued, completing the transaction.<sup>1</sup>

Land that BLM has specifically identified for disposal may be indicated in a BLM Resource Management Plan. The Lower Gila South Resource Management Plan Environmental Impact Statement, issued in August 1985, identified disposal lands in the planning area. These lands are shown in Figure 4. Generally, the parcels eligible for disposal border State Route 85 or the Sonoran Desert National Monument and are located in the southern half of the planning area.

### B. State Land

The Arizona State Land Department administers approximately 28,208 acres of State Trust land within the planning area. Under state charter, the Arizona State Land Department has the responsibility on behalf of beneficiaries to assure the highest and best use of the lands. The Federal Enabling Act and State Constitution mandate that fair market value must be obtained from all trust land transactions that include sales and commercial leasing. All revenues derived from the sale of trust lands are placed in a fund to be used to benefit public education. Given this well-defined mission, development can and does occur on state-owned land. All leases and sales of State Trust land must occur at public auction.

### C. Maricopa County Land

Maricopa County manages the 4,474 acre Buckeye Hills ~~Regional Park~~RECREATION AREA. This park, which overlooks the Gila River and floodplain, offers mostly passive recreation opportunities along with picnic and restroom facilities, but no running water. A SMALL SHOOTING RANGE IS LOCATED IN THE RECREATION AREA THAT COULD BE EXPANDED IN THE FUTURE TO REPLACE A COUNTY SHERIFF'S RANGE PRESENTLY LOCATED NEAR SUN CITY WEST. THE COUNTY SHERIFF'S RANGE AND THE PUBLIC RANGE WOULD BE SEPARATE BUT ADJACENT TO EACH OTHER.

### D. Tribal Lands

The Tohono O'odham Gila Bend Indian Tribe manages approximately 455 acres of land near the Town of Gila Bend. Tribal and allotted lands can be leased to non-Indian entities pursuant to tribal and federal law and would not be subject to state or county law.

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<sup>1</sup> US Bureau of Land Management, <http://www.blm.gov>

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### *Public Facilities and Utilities*

This element describes the various public and private facilities and utilities in the planning area (**Figure 5**) and provides an overview of existing conditions to help determine how current services can help support increased development.

The review is organized into seven subsections:

- A) Water Distribution Systems
- B) Sanitary Sewer System
- C) Sheriff's Department
- D) Fire Protection
- E) Educational Facilities
- F) Parks and Open Space
- G) Landfills

#### A. Water Distribution Systems

Valencia Water Company, Water Utility of Greater Buckeye, Buckeye Irrigation District, Town of Buckeye, and Town of Gila Bend serve domestic needs in the planning area through groundwater pumped from wells. Agricultural irrigation water is supplied by Roosevelt Irrigation District, Buckeye Water Conservation and Drainage District, and by Arlington Canal Company, as well as by numerous irrigation wells throughout the area. Surface water in the form of treated wastewater, combined with irrigation return flow, and groundwater make up the agricultural water supply.

Groundwater quality in the planning area is generally characterized as poor, with high concentrations of fluoride, sulfate, and total dissolved solids, but can generally be treated to drinking water quality. Surface water quality is not considered suitable for drinking purposes and is commonly used for agricultural and industrial uses.

#### B. Sanitary Sewer System

Sewer system availability varies throughout the planning area. Most areas in and adjacent to municipalities are served by public or private sanitary utilities. Areas outside of the Urban Service Area operate primarily on septic tank, although the use of package wastewater treatment plants for larger developments is becoming a common practice.

#### C. Sheriff's Department

The Maricopa County Sheriff's Department, operating out of ~~two~~ONE substations in ~~the planning area~~AVONDALE, provides protective services for unincorporated areas. The Town of Gila Bend also contracts with the Sheriff's Department for services within the town limits. Additionally, the Buckeye Police Department provides protective services within the Buckeye town limits.

#### D. Fire Protection

The Phoenix Fire Department currently ~~dispatches staff~~PROVIDES DISPATCH SERVICES to the Town of Buckeye, Buckeye Valley, Gila Bend, and other communities within the planning area for medical emergencies and fire protection. In addition, the Buckeye Fire Department and the Buckeye Valley Rural Fire District dispatch staff within the city and the area surrounding

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Buckeye for fire emergencies. To ensure complete coverage in the event of fire emergencies, Rural Metro may provide services for all rural areas in Maricopa County.

### E. Educational Facilities

Three elementary schools, a middle school, and two high schools are located in the planning area. Most of the students in the area attend one of the following school districts:

Elementary Districts	Union High School Districts	Unified School Districts
Buckeye	Buckeye	Gila Bend Elementary
Buckeye Middle		Gila Bend High School
Palo Verde		
Paloma		

As in other parts of the metropolitan area, rapid population growth is having significant impact on capacity and construction financing in several of these school districts. Many new developments may be required to dedicate land for future schools and/or assist in school construction.

### F. Parks and Open Space

The following are park and open space facilities in and adjacent to the planning area:

- *Buckeye Hills ~~Park~~ RECREATION AREA*  
Buckeye Hills ~~Park~~ RECREATION AREA is managed by Maricopa County Parks Department. It contains approximately 4,470 acres of natural desert and rolling hills. The park has restroom facilities, picnic areas, and A SMALL SHOOTING RANGE, numerous trails, but no running water. HOWEVER, A WATER SYSTEM HAS BEEN DESIGNED FOR THE RECREATION AREA AND SHOULD BE AVAILABLE FOR USE WITHIN 5 YEARS.
- *Robbins Butte Wildlife Area*  
Robbins Butte Wildlife Area encompasses 1,448 acres and is managed by AGFD. Vegetation has been planted to provide habitat and food for small game, such as mourning and white winged doves, and Gambel's quail.
- *North Maricopa Mountains Wilderness Area*  
North Maricopa Mountains Wilderness Area, managed by BLM, contains 63,200 acres of mountains with elevations ranging from 1,000 to 2,800 feet. The area supports a variety of wildlife, with many hiking and biking trails traversing the area.
- *Sonoran Desert National Monument*  
The Sonoran Desert National Monument is managed by BLM and covers approximately 496,300 acres, with 48,400 acres within the planning area. A variety of plant and animal life thrives in the monument, which also has several historic and hiking trails. The BLM plans to develop a management plan to guide best uses of the monument and preserve the ecological diversity and historical significance of the area.

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### G. Landfills

The Southwest Regional Solid Waste Landfill, owned by BUCKEYE POLLUTION CONTROL CORPORATION AND LEASED TO Allied Waste Industries, is located south of El Paso Gasline Road on the east side of State Route 85. The landfill serves the Town of Buckeye and anyone who pays a per ton charge to use it. The City of Phoenix is planning to build a new solid waste landfill for use by their city AND THE TOWN OF BUCKEYE, to be located ONE-HALF MILE west of State Route 85 between Patterson Road and Wood Road.

#### *Special Planning Concerns*

Traffic congestion, air pollution, and environmental degradation are concerns that are inherent with rapid growth. Because State Route 85 serves as the only continuous north/south road within the planning area, the increase in traffic on the highway as growth and development in the area continues raises concerns for many of the planning area residents. Increased development along the highway will increase traffic, reduce air quality, and could cause harm to important species habitat and the pristine Sonoran Desert.

Preservation of the area's rural character is also important to many residents. However, meeting the daily needs of rural residents is also necessary, especially for access to medical and day-to-day services, such as schooling and grocery shopping. As the population ages in the planning area, the need for medical services and transport for those not able to drive will increase. Balancing the need for these services while maintaining rural lifestyles poses a significant challenge for policymakers. Specific goals and policies relating to these needs are included in the Plan Elements section of this area plan to help achieve a necessary balance.

### **Future Land Use Definitions and Guidelines**

Definitions and guidelines are included for better understanding of land use discussions. In addition, for each land use designation the corresponding definitions and guidelines help assure consistent interpretation. Land use categories in the State Route 85 Corridor Area Plan are in agreement with the Maricopa County Comprehensive Plan and the system of regional land use standards.

### **Future Land Use Analysis**

An analysis of future land use development in the planning area follows each definition. While the goals, objectives, and policies are the basis of the area's desired future land use, the ultimate development pattern is tempered by recognition of existing development activities and established patterns. This includes consideration for land uses and features outside the planning area that might affect desired future development patterns. In addition, adopted municipal land use plans were considered during the analysis of land uses.

State law requires that any and all rezonings be consistent with the adopted county plan. Therefore, changes in zoning for specific areas or land parcels must be evaluated in relation to overall advancement of this plan's goals, objectives, and policies. Guidelines following the land use definitions are useful for ensuring the intent and integrity of the Area Plan are retained.

#### *Open Space Land Use: Definitions & Guidelines*

Preservation of open space in rural areas is an important consideration in the State Route 85 Corridor Area Plan. In addition, the Growing Smarter Act of 1998 requires that Maricopa

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County plan for the acquisition and preservation of open space. A more complete discussion of open space is in the Open Space element of this area plan.

The Open Space category denotes areas best suited for open space and recreation. It includes uses such as parks, recreation and scenic areas, and drainage. Residential development of 1 dwelling per acre or less is permitted in certain open space areas, provided development in environmentally sensitive areas like steep slopes, floodplains, and significant wildlife and plant habitat is in compliance with all applicable federal, state, and county regulations. The Maricopa County Comprehensive Plan defines two types of open space: Dedicated and Proposed. It is important to note that Dedicated Open Space areas are those under public ownership such as county parks, federally designated wilderness areas, and national monuments. Proposed Open Space areas are those that have been identified for potential open space and recreational purposes and are intended to be managed to protect public access and encourage environmental preservation. However, per State law, all private and State Trust Land set forth in this area plan as proposed open space may be developed at residential densities of 1 dwelling unit per acre – subject to applicable planning and zoning regulations – unless the land is added to the public domain or protected using other techniques that respect private property rights. Also, if BLM sells or exchanges parcels of land to be used for development, or if land presently in unincorporated areas is annexed by municipalities, land use designations could be changed. ~~Two large areas of ESTRELLA MOUNTAIN RANCH, ON~~ former BLM land close to the planning area, ~~(Estrella Mountain Ranch to the east and Sun Valley to the northwest)~~ are is currently being developed into medium and high density ~~residential subdivisions~~ HOUSING. As late as the ~~1970s~~ 1980s, these two tracts of land were part of BLM holdings. The Open Space element of this area plan describes and offers examples of the two types of open space.

The extent to which open space can be added to the public domain or can otherwise be protected depends on both the availability of specific preservation techniques (i.e. actions that can be used to acquire and protect open space) and the public's commitment to financially support such techniques. Techniques that could be used include:

- Fee simple purchase ("pay as you go")
- Conservation easements
- Purchase of development rights
- Purchase of right-of-way easements
- Environmentally sensitive land ordinance
- Right of first refusal
- Density transfers
- Performance based zoning
- Dedications/donations
- Preservation easement
- Hillside ordinance
- Cluster development
- Conveyance of property to homeowners association
- Arizona Preserve Initiative
- Lease/use agreements

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The feasibility of using any of these preservation techniques should be evaluated on a case-by-case basis. However, the use of any of the techniques should not infringe on the property rights of any landowners.

### *Open Space Land Use: Analysis*

A significant portion of the lower half of the planning area is designated as open space. The largest concentration of dedicated open space is located east of State Route 85 and south of El Paso Gasline Road in the recently established Sonoran Desert National Monument. The monument, administered by BLM, contains the North Maricopa Mountains Wilderness Area. Buckeye Hills ~~Park~~RECREATION AREA, in the northern portion of the planning area, is located west of State Route 85 and is managed by Maricopa County Parks and Recreation Department. Robbins Butte Wildlife Area is a small area north of Buckeye Hills ~~Park~~RECREATION AREA that is managed by AGFD. These areas will remain as permanent, dedicated open space. Much of the land between the Gila River and El Paso Gasline Road is administered by the Arizona State Land Department and BLM.

It is important to note that BLM has designated several one-mile wide transmission line corridors in the planning area. One corridor extends the width of the planning area and straddles El Paso Gasline Road. Power transmission lines are planned that will originate near the Palo Verde Generating Station and continue east along El Paso Gasline Road through the planning area. Another such corridor is designated along the east side of State Route 85, originating near the Town of Gila Bend and continuing north between State Route 85 and the Sonoran Desert National Monument boundary.

A large area in the southern portion of the planning area, west of State Route 85 in the foothills of the Gila Bend Mountains, is administered by BLM. In the future, some of this land may be made available for sale or exchange, or may be retained as open space. Because of this particular area's scenic beauty and potential as wildlife habitat, the State Route 85 Corridor Area Plan encourages its preservation as much as possible. If the land is not acquired by the county, this area plan recognizes the private property rights of those private land owners to develop their respective lands to a density of 1 residential dwelling unit per acre ~~OR WITH A HIGHER DENSITY IF INCLUDED IN A DEVELOPMENT MASTER PLAN~~. These Open Space lands are shown in **Figure 14 – Future Land Use**.

### *Residential Land Use: Definitions and Guidelines*

*Eye to the Future 2020*, the Maricopa County Comprehensive Plan, outlines 24 land use categories, five of which are residential. The Area Plan contains two residential land use categories, although additional categories are permitted within Development Master Plans that allow higher density development. In addition, other "uses by right," such as schools and churches, are permitted in residential land use categories although special consideration should be given to their specific locations. As with all types of development, care should be given to ensure appropriate preservation of environmental and cultural features such as hillsides, washes, archaeological sites, and other sensitive areas. In unincorporated Maricopa County, residential density within any given project is calculated based upon the overall gross acreage of the project.

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### Rural (0-1.0 Dwelling Units per Acre)

The Rural category identifies areas where single family residential development is desirable, but unique circumstances dictate lower density or urban services such as sewer, water, schools, roads, and emergency services are limited or nonexistent. Suitability is determined based on location, access, existing land use patterns, and natural or human constraints. Densities greater than 1.0 dwelling unit per acre may be permitted in new development, but only if areas of lower densities offset the increase such that an average of no more than 1.0 dwelling unit per acre is maintained. Uses in this category include agriculture and single family residential.

### Large Lot Residential (greater than 1.0 but less than or equal to 2.0 Dwelling Units per Acre)

The Large Lot Residential category denotes areas where single family residential development is desirable and urban services such as sewer, water, schools, parks, and fire and police protection may only be partially available or be required as an improvement district. Suitability is based on location, access, existing land use patterns, and natural and human constraints. Densities greater than 2.0 dwelling units per acre may be permitted in new development, but only if areas of lower densities offset the increase such that an average of no more than 2.0 dwelling units per acre is maintained. A community sewer and water system will be required for developments above 1.0 dwelling unit per acre and may be required for those below 1.0 dwelling unit per acre depending on preexisting conditions.

### *Residential Land Use: Analysis*

Continuation of rural densities in areas considered environmentally sensitive, where residents desire a rural lifestyle, and where urban services are limited or not available is the principle that guides residential development in the Area Plan. Low density development can negatively impact land patterns and can be an inefficient use of public resources; therefore, this designation is primarily located in regions outside of the Urban Service Area. Residents who choose a rural lifestyle should not expect urban services in the unincorporated area.

### Development Master Plans

Master planned communities have long been a preferred type of development in Maricopa County because they promote quality standards of prudent and sustainable land use. Maricopa County advocates using Development Master Plans (DMPs) to allow flexibility in the master planning of large tracts of unincorporated land. DMPs provide opportunities for creative design and development techniques, and generally require a high level of commitment to ensuring they have adequate facilities and infrastructure to serve their residents' needs. Master planned communities may be initiated by property owners and should consider having the following features:

- Creative and innovative designs.
- Mixed land use opportunities and a range of housing types.
- Mixed housing densities that are transitioned with spatial, structural, and visual buffers.
- Multi-modal transportation opportunities to reduce automobile dependency and increase access and mobility.
- Flexible standards for roadway design, transit facilities, pedestrian circulation, and bicycle lanes.
- Employment opportunities that contribute to a community's economic base while increasing the jobs/housing balance.

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- Open space preservation to enhance economic value, visual character, wildlife and vegetation preservation, and residents' overall quality of life.
- Availability of urban services such as water and sewer systems, police and fire protection, schools (except in retirement communities), parks, and libraries if needed and not available within a reasonable distance.

Historically, DMPs have been allowed throughout the county, although appropriate development guidelines will vary depending on the individual circumstances of each DMP and the goals, objectives, and policies set forth in the Comprehensive Plan. In addition, a DMP developer must demonstrate how the project will impact the affected Area Plan, both positively and negatively, at project build out.

### Development Agreements and DMPs

Development agreements are voluntary arrangements between local governments and developers concerning the design and construction of specific development projects. These agreements protect projects from changes in laws and regulations, while allowing governments to obtain specified exactions to ensure infrastructure construction and reinforce local planning efforts. Development agreements offer a way to reduce developers' risk while simultaneously increasing government's ability to guide local development.

### *Commercial Land Use: Definitions*

The following commercial land use categories are allowed in the State Route 85 Corridor planning area.

#### Neighborhood Retail Center — NRC

The Neighborhood Retail Center category identifies convenience commercial areas for the location of small shops and services that benefit local residents. This category permits developments with a total building area of less than 100,000 square feet. The category is designated in areas having a more rural character.

#### Community Retail Center – CRC

The Community Retail Center category includes areas where general neighborhood/community based commercial uses may take place. This category permits developments with total building area of 100,000 to 500,000 square feet. CRCs provide convenience goods and personal services that meet the daily needs of an immediate neighborhood trade area. These trade areas should serve a minimum population of 5,000 people, and a limited number of permitted activities should be provided. A community sewer and water system will be required for development, and a market analysis may be required. All uses within this category are subject to plan review and approval.

### *Commercial Land Use: Guidelines*

The following guidelines assist land use planning as it relates to the commercial land use designation:

- Commercial activities include appropriate service and retail uses. These uses may be permitted in neighborhood retail and community retail centers, but only on a scale compatible with adjacent residential development.

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- All commercial development should be landscaped utilizing themes that are related to, and cohesive with, adjacent development. Landscaped easements along public rights-of-way using shrubs, trees, and/or earth berming will be provided and installed at the time of street construction. Both on-site and off-site signs should be controlled in terms of location and maximum size.

### *Commercial Land Use: Analysis*

Given the significant number of arterial streets and the proposed expansion of State Route 85 in the planning area, it is likely that commercial development will increase as opportunities along these corridors become available. However, commercial development should be carefully planned so as not to negatively impact traffic patterns and adjacent land uses.

A unique challenge is presented along State Route 85, where neighborhood retail centers may not be sufficient to provide necessary services to the vast number of people traveling through the area. Therefore, community retail centers are encouraged proximate to the Riggs Road and State Route 85 intersection IN COORDINATION WITH THE TOWN OF BUCKEYE GENERAL DEVELOPMENT PLAN AND ALONG STATE ROUTE 85 BETWEEN SISSON AND WATERMELON ROADS. ESTABLISHMENT OF NECESSARY INFRASTRUCTURE WOULD BE ESSENTIAL TO FUTURE DEVELOPMENT ALONG STATE ROUTE 85. At this time, it is not possible to determine the location of State Route 85 interchanges that would allow easy access to commercial nodes at other locations along the highway. However, a commercial node S would be encouraged proximate to ~~this intersection~~ THESE AREAS, as long as adequate access from the highway, AS WELL AS ADEQUATE INFRASTRUCTURE, is provided. As work continues on widening the highway, this area plan should be updated to reflect changes in land use designations.

Neighborhood retail centers are encouraged along MC 85 between State Route 85 and Rooks Road, along MC 85 between Apache and Rainbow Roads, and at Apache and Yuma Roads north of the Gila River in the planning area. New commercial development should be permitted only in those areas designated on the Future Land Use map (Figure 14).

### *Employment Center Land Use: Definitions*

The following is the employment center land use category allowed in the planning area. Access to arterial roads is an important consideration.

#### Industrial Employment Centers

The Industrial Employment Centers category identifies locations for major employment centers. Uses permitted in this category include general warehousing, storage, distribution activities, and general manufacturing. Compatibility with adjacent current and future land use is an important consideration, and developments within this category are subject to plan review and approval.

### *Employment Center Land Use: Guidelines*

The following guidelines help govern all land use planning as it relates to the Employment Center land use designation:

- Proposed uses must be appropriate for the type of employment center in which they are located.
- Heavy industrial uses and warehousing activities should be located set back from arterial streets, allowing garden-type light industrial and business park uses to buffer the

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general view of heavy industrial activities. Industrial development may also be required to landscape and/or to screen uses from the public view.

### *Employment Center Land Use: Analysis*

The lack of existing employment centers is an important concern. Because portions of the planning area will experience an increase in population over the next two decades, residents will require employment opportunities proximate to their homes. These employment opportunities should be located in areas close to Buckeye and Gila Bend. Therefore, industrial employment centers are encouraged close to the intersection of MC 85 and State Route 85, along the Buckeye Canal and the Southern Pacific Railroad tracks west of State Route 85, and surrounding the Buckeye Airport area. The Town of Gila Bend has designated a number of areas west and south of the town as light and heavy industrial sites.

### *Buffering and Transitional Land Use Guidelines*

When two or more types of land use are shown on the State Route 85 Corridor Area Plan or are approved as part of a Development Master Plan, buffering and/or transitional land uses may be necessary. Buffering may consist of open space placed between two incompatible land uses, density transitions, walls, berms, landscaped setbacks, or other recognized methods. Buffering is beneficial for intensive uses where a less intensive use already exists, or where the Area Plan shows a less intense use adjacent to a more intense use. Situations that may benefit from transitional land use include:

- Low density, single-family residential development adjacent to multi-family development.
- Single or multi-family development adjacent to commercial or industrial land uses.

In cases where buffering is necessary, these and other methods may be considered:

- Landscaped open space
- Arterial or collector streets with landscaping
- Major landscaped transmission line easements
- Block walls, landscaping, earth berms
- Any combination of the above

### *Facilities and Services*

The planning area contains a variety of traditional urban, suburban, and rural developments. In these developments, the quantity and location of facilities and services varies. To encourage orderly, timely, and fiscally responsible growth, higher density development (greater than 1 dwelling unit per acre) will be required to locate in the Urban Service Area.

The Urban Service Area (USA) designation serves as a decision making guide to encourage coordinated physical development within the urbanizing area. The USA is based on the provision of infrastructure and services necessary to establish and maintain high quality urban development. The USA is not delineated on the land use map. Rather, it is defined by the ability of a jurisdiction, improvement district, or private entity to provide infrastructure and appropriate urban services to a specific site or project. The USA is considered suitable for higher density development, as well as an area considered efficient to expend public infrastructure funds. A proposed development might be considered within an USA if it conforms

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to the relevant general/area plan, and utilities, infrastructure, and urban services can be provided.

For rural development outside the USA, a range of facilities, infrastructure, and services may not be required and will be reviewed by the County on a case-by-case basis. Although each development must be considered on its own merits, **Table 7** provides reference guidelines that should be used when determining and sizing necessary facilities. DMPs have somewhat different rules for determining and sizing necessary facilities. These can be found in Maricopa County's Development Master Plan Guidelines. Some of the information contained in this table may also be found in **Table 12** in the Open Space element of this area plan.

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**Table 7      Facilities Space Standards**

<b>Type</b>	<b>Space Requirements</b>	<b>Source</b>
<i>Parks and Recreation Facilities</i>		
Minimal Park Standards	6¼ to 10½ acres/1,000 <sup>1</sup>	National Recreation and Parks Individual Park Type Standards
Playlots	0.1 to 0.3 acres/1,000 persons	Ibid
Neighborhood Playground	2.0 acres/1,000 persons	
Neighborhood Park	2.0 acres/1,000 persons	
Community Playfield	1 acre/1,000 persons	
Major Community Park	5 acres for 1,000 to 10,000 persons	
Open Space	.75 to 1 acre/1,000 persons	
Baseball (youth)	1.2 acres/5,000 persons	
Basketball	7,280 sq.ft./5,000 persons	
Swimming Pool	2.0 acres/20,000 persons	
<i>Libraries</i>		
Regional Library	40-50,000 sq.ft./ 80-125,000 persons	Planning for Implementation for the Maricopa County Library District, 1990
Community Library	15-20,000 sq.ft./30-50,000 persons	Ibid
Neighborhood Library	3-5,000 sq.ft./10-20,000 persons	Ibid
<i>Educational Facilities<sup>2</sup></i>		
Elementary School	8-12 acres, 1 school/1,500-5,000 persons	U.S. Department of Health Education and Welfare; Urban Planning and Design Criteria, 3 <sup>rd</sup> Edition
Junior High School	20-25 acres, 1 school/1,000-16,000 persons	Ibid
Senior High School	30-45 acres, 1 school/14,000-25,000 persons	Ibid

<sup>1</sup>Using the NRPA standard applied to the existing planning area population, a park system, at a minimum, is composed of total acreage of 6¼ to 10½ acres developed open space per 1,000 persons.

<sup>2</sup>These standards are provided as a base reference for the Area Plan. Each of the respective school districts in the planning area determines standards for all facilities within the school district. Consultation with these school districts is recommended.

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## TRANSPORTATION

This portion of the State Route 85 Corridor Area Plan analyzes existing transportation plans, studies, programs, public transit service issues, and provides an inventory of the area's roadway system.

### Existing Transportation Plans

#### *Maricopa County Transportation System Plan*

The mission of the Maricopa County Department of Transportation (MCDOT) is to provide a quality transportation system for the citizens of Maricopa County. The Transportation System Plan (TSP) was adopted by the Board of Supervisors in December of 1997, as the transportation element of Maricopa County's Comprehensive Plan 2020. It states that the transportation network should support the safe and efficient movement of goods and people, be environmentally compatible with surrounding conditions, and supportive of economic development activities. The TSP helps evaluate regional transportation system impacts; helps identify funding and maintenance priorities; and organizes roadways under MCDOT's jurisdiction into primary, secondary, and local roads.<sup>2</sup> According to the TSP, primary roads satisfy the underlying principle to serve regional travel and constitute a seamless system crossing jurisdictional boundaries. They are either Maricopa Association of Governments (MAG) Roads of Regional Significance, or are of major importance to the county roadway system. MAG developed the Roads of Regional Significance (RRS) concept, and has assigned this designation to a limited number of key arterials whose primary function is to provide mobility within the urbanized area by supplementing and interchanging with the freeway system. Roads of regional significance are expected to receive priority for improvement to a regional standard, where feasible. A six-lane divided roadway with 140 feet of right-of-way is the ultimate design standard for urban RRS. State Route 85 has been designated as a Gateway Road of Regional Significance, which provides access to the region and requires protection to maintain free flow access in and out of the region.

#### *Maricopa County Major Streets and Routes Plan*

The TSP calls for the preparation of a Major Streets and Routes Plan (MSRP). This plan was completed and adopted April 18, 2001. The MSRP designates and maps future functional classifications for all primary and secondary roads in the Maricopa County roadway system. The Plan includes two components: A Street Classification Atlas and a Policy Document to support the Atlas.

The functional classification system used by Maricopa County to classify County streets includes six classifications: expressway, principal arterial, minor arterial, major collector, minor collector, and local street. Typical geometric design standards are illustrated in cross-section in the MSRP. These future roadway classifications are identified in **Figure 6 - Future Street Classification System**.<sup>3</sup> Current street classifications for the State Route 85 Corridor Area Plan are provided in the Inventory segment of this element. This map also includes traffic counts for heavily used streets within the planning area.

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<sup>2</sup> Maricopa County Planning and Development. *Transportation System Plan*, 1997

<sup>3</sup> Maricopa County Department of Transportation. *Maricopa County Major Streets and Routes Plan*, 2001

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The MSRP defines the components of the **future** functional classification system as follows:

### Expressway/Freeway

An expressway/freeway provides for the expeditious movement of large volumes of through traffic; is a divided roadway and is not intended to provide access to abutting land; will have complete separation of opposing traffic flows; and will have grade separated intersections or at grade, signalized intersections at a minimum of one mile spacing. The MSRP identifies three **future** expressways/freeways in the planning area. They are Interstate 8, Interstate 10, and State Route 85.

### Principal Arterial Street

A principal arterial street provides for long distance traffic movement within Maricopa County or between Maricopa County and urban areas. Service to abutting land is limited. Access is controlled through frontage roads and raised medians, as well as the spacing and location of driveways and intersections. Opposing traffic flows are separated often by a raised median. The ultimate cross section is four to six lanes in width and includes bike lanes. The **future** principal arterial streets identified in the planning area by the MSRP include MC85, Maricopa, Baseline, Broadway, Yuma, Palo Verde, Miller, and Watson roads.

### Minor Arterial Street

A minor arterial street provides for moderately long distance traffic movement within Maricopa County or between Maricopa County and urban areas. Moderate access is provided to abutting land. Access is controlled through frontage roads, raised medians, and the spacing and location of driveways and intersections. A raised median or a continuous left-turn lane separates opposing traffic flows. The ultimate cross section is four lanes in width and includes bike lanes. **Future** minor arterial streets in the planning area include Old US 80, Southern Avenue, Patterson, Komatke, NarraAmore, Lower River, Broadway, Yuma, Hazen, Lower Buckeye, Johnson, Bruner, Palo Verde, Wilson, Turner, Rooks, Apache, Watson, and Rainbow roads.

### Major Collector Street

A major collector street provides for short distance (less than three miles) traffic movement; primarily functions to collect and distribute traffic between local streets or high volume traffic generators and arterial streets; and provides direct access to abutting land. Raised medians and the spacing and location of intersections and driveways may control some access. A major collector is two to three lanes in width and includes bike lanes. **Future** major collector streets in the planning area include Enterprise, Pierpoint, Wood, and Fornas roads.

### Minor Collector Street

A minor collector street provides for short distance (less than three miles) traffic movement; primarily functions to collect and distribute traffic between local streets and arterial streets; and provides direct access to abutting land. The spacing and location of intersections and driveways may control some access. A minor collector street is two lanes in width. **Future** minor collector streets in the planning area include Main Street (Gila Bend), Gila Boulevard, Indian, Watermelon, Sisson, San Lucy, and Stout roads.

### Local Street

A local street provides for direct access to residential, commercial, or other abutting land, and for local traffic movements. Local streets connect to collector or arterial streets. A local street is

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a two-lane roadway. Examples of **future** local streets in the planning would be Deniza Boulevard, Watkins Avenue, and 7<sup>th</sup> Avenue E.

### *Transportation Overlays*

The TSP introduces the concept of overlays for the roadway system within the County, stating that “overlays acknowledge the special importance of roads for purposes other than mobility”. The MSRP incorporates six overlays: Scenic/Recreational, Public Transportation, AZTech, Oversize Load, School Safety, and Roads of Regional Significance.

#### Scenic/Recreational Overlay

The scenic/recreational overlay acknowledges the need to minimize impacts to, or preserve, characteristics of a road’s environment, or it recognizes a road’s importance as access to recreational facilities. Characteristics such as design speeds, right-of-way, cuts and fills, existing vegetation and viewsheds will be carefully analyzed for these roadways. The planning area currently has one designated scenic corridor: Old US 80 from the junction with State Route 85 south to Stout Road in the Town of Gila Bend.

#### Public Transportation Overlay

The public transportation overlay identifies potential regional rail or bus rapid transit Corridors. The Southern Pacific Railroad line just north of MC85 was designated with a public transportation overlay by the MSRP.

#### AZTech Overlay

The AZTech overlay recognizes the special importance of roadways and corridors to implement transportation-related technology. The AZTech overlay identifies corridors where technology will be incorporated to improve transportation service. No roadways in the planning area are designated with the AZTech overlay by the MSRP.

#### Oversize Load Overlay

The oversize load overlay identifies routes designed for usage by oversize vehicles and restricted routes where oversize vehicle use is discouraged. An oversize load is defined as a vehicle having a gross weight of over 160,000 pounds or having dimensions larger than one of the following:

- 120 feet in length
- 14 feet in width
- 16 feet in height

The MSRP identifies two roadways in the planning area with an oversize load overlay. They are MC85 throughout the corridor and Baseline Road. There are no roadways in the planning area identified as being restricted.

#### School Safety Overlay

The school safety overlay identifies sites where special design or operational criteria will be implemented to provide for safety. The MSRP identifies one school safety overlay in the planning area. It is the Palo Verde Elementary School located at the intersection of Old US 80 and Palo Verde Road.

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### Roads of Regional Significance Overlay

The Roads of Regional Significance (RRS) concept and design guidelines were adopted by the MAG Regional Council in the spring of 1991, and by the Maricopa County Board of Supervisors in October 1992. Further analysis of this concept was completed in January 1996. The concept is a system of upgraded streets and roads to improve mobility in the urban areas, as well as into and out of the region. The adopted RRS concept includes Urban and Gateway routes. Urban routes are designed to complement the freeway system and are three to six miles apart. The concept facilitates the development of a system of routes with higher design standards and higher speeds that will help ensure regional mobility. Gateway routes provide access to the region and need protection to maintain free flow access in and out of the region. The MSRP identifies two roadways in the planning area with an RRS overlay. They are MC 85 and State Route 85.

### Emergency Management Overlay

The emergency management overlay identifies roadways that are of special importance in case of emergencies or catastrophes at the Palo Verde Nuclear Generation Station. Approximately 8.6 square miles on the northwestern edge of the planning area lies within the ten-mile radius surrounding the Palo Verde Nuclear Generation Station. Old US 80 and Interstate 10 are roads in the planning area identified by the TSP as emergency evacuation routes.<sup>4</sup>

### *Southwest Valley Transportation Study*

The Southwest Valley Transportation Study (SWVTS) was completed in June 1997 for MCDOT, the cities of Avondale, Goodyear, Litchfield Park, Tolleson, and the Town of Buckeye. The purpose of the study was to develop a 25-year multimodal transportation plan for the entire area, plus a community plan for each jurisdiction. This study, which encompasses some of the State Route 85 planning area, developed a comprehensive, multimodal transportation plan consisting of short, medium, and long-range transportation improvements.<sup>5</sup> The SWVTS identified several key issues, including:

- Preservation of existing lifestyles (generally rural) in established communities, including supporting a balanced, multi-modal transportation system that will serve people rather than just automobiles.
- Improvement of all-weather access across major streams and drainageways, including the Gila River.
- Recognizing the importance of MC 85 as a key east-west arterial across the entire Southwest Valley. As such, supporting coordinated planning by the County and other jurisdictions for the ultimate function, cross-section, and appearance of MC 85.

### *Rural Maricopa Transit Development Program*

In 1997, Maricopa County completed the *Rural Maricopa County Transit Development Program*. The purpose of this study was to identify transit needs and ways to provide additional transit options in rural Maricopa County. The study also identified several important recommendations, including:

- Have Maricopa County serve as the lead agency in establishing public transit service from rural to urban areas.

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<sup>4</sup> Maricopa County Planning and Development. *Transportation System Plan*, 1997

<sup>5</sup> Maricopa County Department of Transportation. *Southwest Valley Transportation Study*, 1996

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- Implement a pilot transit program between Gila Bend, Buckeye, and Phoenix. When operations prove successful, establish a similar program along Wickenburg Highway.
- Continue support for a regional transportation system through service coordination.

### *MCDOT Bicycle Transportation System Plan*

With the adoption of the MCDOT Bicycle Transportation System Plan on May 19, 1999 by the Board of Supervisors, Maricopa County recognized bicycling as a viable transportation mode and actively works toward improving the transportation network to increase access and safety for bicyclists. MCDOT includes bicycle facilities on all County roadways as described in the Roadway Design Manual and the Pavement Marking Manual. The standard cross section for all County arterial and collector streets includes bike lanes. **Figure 7** represents a cross section of an urban minor collector showing a bike lane that is 8 feet wide beside the 12-foot wide travel lane.

The 1999 plan identified 473 miles of County roads for the addition of on-road bicycle facilities. This network reflects a backbone for bicycle facilities to prioritize investment and guide project development. Components of the identified bicycle network within the State Route 85 Corridor Area Plan include MC 85, Baseline Road, Old US 80, and Palo Verde Road.

### *Maricopa County Regional Trail System Plan*

The Board of Supervisors adopted Phase One of the Maricopa County Regional Trail System Plan on September 4, 2002. Their vision is to connect the majestic open spaces of the Maricopa County Regional Parks with a non-motorized trail system. Phases Two and Three are expected to be completed by June 2004. The State Route 85 Corridor Area Plan lies within the study area included in Phase Three.

## Existing Conditions

### *Transportation Improvement Program*

Roadway investment decisions by the Maricopa County Department of Transportation are based on a fundamental principle: to provide the right transportation system, at the right time, and for the right cost. To achieve this vision, Maricopa County develops an annual Transportation Improvement Program (TIP) to identify project funding priorities for the next five years. In other words, each year new projects are added to the fifth year, while previously programmed projects move up a year in the schedule.

As a structured finance plan, the TIP determines future road expansions and improvements. There are no projects in the State Route 85 Corridor planning area identified in the 2002-2007 Transportation Improvement Plan.

### *Average Daily Traffic Counts*

The Maricopa County Department of Transportation's website provides average daily traffic count data on many major streets. **Table 8** summarizes traffic count information for some major roads in the planning area and shows a comparison of 1995 and 2000 traffic counts. Figure 6 shows traffic counts for about 20 locations in the planning area.

### *Street Lighting in Rural Areas*

Many people who live in rural areas enjoy views of the night sky without interference from tall buildings and outdoor lighting. Maricopa County's Zoning Ordinance provides good lighting

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practices such that outdoor artificial lighting systems are designed to conserve energy and money, while increasing nighttime safety, utility, security, and productivity. However, the provisions in the Zoning Ordinance are intended to control the use of outdoor artificial lighting devices that emit rays into the night sky having a detrimental effect on astronomical observations. Additionally, MCDOT has a policy that outlines four methods of establishing street lighting. The four methods are:

- Create a street lighting improvement district (SLID) – Citizens who desire lighting in a neighborhood must have a majority agreement and cover installation costs. Maricopa County Superintendent of Streets organizes the installation and residents pay for installation through property taxes.
- Create a private lighting agreement – Citizen requests dusk to dawn lighting and pays a monthly fee to the power company that organizes installation and maintenance.
- Street lights at signalized intersections – Maricopa County Traffic Engineering Division provides lighting at all four corners of an intersection. Lighting will not be provided if there is an overhead utility conflict at the intersection.
- History of night accident – Maricopa County Traffic Engineer would approve installation of lighting after all other methods have been attempted. Traffic Engineering Division pays for installation and maintenance until area is annexed or incorporated.

**Table 8      Average Daily Traffic Counts**

<b>Street</b>	<b>Location from Reference Street</b>	<b>Reference Street</b>	<b>2000</b>	<b>1995</b>
Beloat Rd	E	Johnson Rd	126	75
Apache Rd	N	Baseline Rd	2309	1518
Apache Rd	N	Southern Ave	1280	978
Baseline Rd	W	Central Blvd	3214	2163
Baseline Rd	E	Palo Verde Rd	2170	1393
Broadway Rd	E	Oglesby Rd	453	258
Bruner Rd	N	Southern Ave	33	103
Hazen Rd	E	SR 85	665	925
Johnson Rd	N	Broadway Rd	275	142
Miller Rd	S	Baseline Rd	4968	3482
Miller RD	S	MC 85	1845	1160
Old US 80	S	Patterson Rd	255	229
Palo Verde Rd	S	Baseline Rd	725	411
Pierpont Rd	W	Old US 80	51	38
Southern Ave	E	Watson Rd	535	396
Turner Rd	N	Baseline Rd	74	752
Woods Rd	W	SR 85	214	119

### *Dust Abatement*

MCDOT is paving numerous County maintained dirt roads as an effort to reduce dust. The Environmental Protection Agency (EPA) imposed the 1998 Federal Implementation Plan for PM<sub>10</sub> nonattainment in Maricopa County, requiring dust control measures for publicly maintained

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roads with more than 250 vehicles per day. EPA indicated in the fall of 1999 that the measures submitted with the Serious Area Plan for PM<sub>10</sub> were inadequate and needed additional measures. Maricopa County proceeded to obtain MAG approval for Congestion Management and Air Quality (CMAQ) funding to assist with paving dirt roads, and has included this as a committed measure in the revised serious area plan submitted February 2000. MCDOT maintains nearly 800 miles of unpaved roads in Maricopa County. There are many more unpaved roads within the County that are private roads and it is the responsibility of the property owners to maintain or pave these roads. MCDOT is able to help property owners set up improvement districts to manage and finance paving and maintenance projects. Plans are underway to pave more than 60 miles of highly traveled, unpaved County roads over the next three years (beginning in 2001) to help relieve some dust problems. Funding constraints currently limit paving projects to those dirt roads with approximately 150 vehicles per day and higher. There are no roads in the planning area currently scheduled for paving.

### **Inventory of the Existing Transportation System in the State Route 85 Corridor Planning Area**

In general, the existing roadway system is based on a grid with arterials spaced at one mile intervals. This network is incomplete outside the established urbanized areas, with many gaps that reflect both the sparse development and the river barriers that have few bridged crossings. The State Route 85 Corridor planning area roadway system consists of expressways, principal arterials, minor arterials, major collectors, minor collectors, and local streets. Using national classification terminology, these systems are classified based on the trips served and the operational characteristics of the streets or highways. Streets in the planning area that were built to prior MCDOT standards may not possess the pavement width, number of lanes, bike lanes, or shoulders that are reflected in today's standard cross sections. Cross sections may be urban or rural. Rural cross sections do not include curb, gutter, or sidewalk.

#### *Current Functional Classification*

Interstate 8 and Interstate 10 are currently functioning as freeways. State Route 85 is a two lane rural highway. The Arizona Department of Transportation (ADOT) is widening State Route 85 to a four lane divided highway from Interstate 10 to Interstate 8 to accommodate future increases in traffic. Although there is limited information available regarding the schedule of improvements, ADOT's Five-Year Transportation Facilities Construction Program includes five roadway construction projects on State Route 85 for which funds will be available in 2004, 2005, and 2006. These include roadway construction between mileposts 125.40 and 137.50, between mileposts 139.01 and 147.50, and between Interstate 10 and MC 85.<sup>6</sup> ADOT anticipates that widening State Route 85 will be completed within the next ten years. County roadways, except local roadways, and their **current** functional classifications are listed in **Table 9**.

#### *Bicycle and Pedestrian Facilities*

Bicyclists and pedestrians have access to all of the roadways in the planning area ~~including Interstates 8 and 10~~. In most cases, bike lanes or shoulders will be added during construction, reconstruction, or widening of existing roadways. Sidewalks will be constructed when an urban cross section is used. However, there is currently no continuous or integrated bikeway or pedestrian system serving the study area as a whole. Within the State Route 85 Corridor

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<sup>6</sup> Arizona Department of Transportation, <http://tpd.az.gov/pps/cp.asp>

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planning area, the MCDOT Bicycle Transportation System Plan identifies MC 85, Old US 80, Palo Verde, and Baseline roads as components of the regional bicycle network.

**Table 9 County Roadways with Current Functional Classifications**

<b>Roadway</b>	<b>Functional Classification</b>
Apache Road	urban minor collector
Baseline Road	urban major collector west of Miller
Broadway Road	urban major collector from Oglesby to Rainbow roads
	urban minor collector west of Johnson Road
Durango Street	urban minor collector
Gila Boulevard	rural collector
Hazen Road	urban minor collector
Johnson Road	urban minor collector
Lower River Road	urban minor collector
Maricopa	rural collector.
MC 85	urban principal arterial.
Miller Road	urban major collector north of Hazen Road
	rural collector south of Hazen Road
Narramore Road	urban minor collector
Old US 80	urban major collector west of Turner Road
	urban minor collector east of Turner Road
	rural collector south of Komatke Road
Palo Verde Road	urban minor collector north of Carver Road
Patterson Road	rural collector
Pima Road	urban major collector north of 7 <sup>th</sup> Avenue E
	urban minor collector south of 7 <sup>th</sup> Avenue E
Rainbow Road	urban minor collector
Rooks Road	urban minor collector
Southern Avenue	urban major collector east of Oglesby Road
	urban minor collector west of Oglesby Road
Turner Road	urban minor collector
Watermelon Road	rural collector
Wilson Avenue	urban minor collector
Yuma Road	urban major collector west of Watson Road
	urban minor collector west of Palo Verde Road

The Southwest Valley Transportation Study includes a Long-Range Non-Motorized Transportation Plan indicating potential bike and pedestrian use areas. The plan depicts multi-use paths along the Roosevelt Irrigation District and Buckeye Canal banks to link Buckeye with Goodyear and the Tres Rios Greenbelt in Avondale. Off-road bikeways are planned along the Gila River. Phase Three of the Maricopa County Regional Trail System Plan will be evaluating potential trail corridors within the planning area.

### *Existing Transit and Rail Services*

There are currently no local bus routes serving the Southwest Study Area. The closest facility, a shared use park-and-ride lot at the southwest corner of Dysart Road and Van Buren Street in Avondale, is about 15 miles away. Route 560 provides four eastbound and four westbound

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trips per day on weekdays only. Passengers may use Route 560 to make local trips between Goodyear, Avondale, Tolleson and Desert Sky Mall in Phoenix. Transfers to local routes are available at Desert Sky and Downtown Phoenix. Lack of public transportation within the Southwest Study Area may pose problems for planning area residents, particularly the elderly and disabled, in the future. Maricopa County supports any efforts to increase transport services into and throughout the planning area.

Greyhound Lines operates a few inter-city bus trips between Phoenix and southern California that serve Buckeye, Tolleson, and Avondale. Two to three eastbound and westbound trips per day stop at each location. Passengers may make connections in Phoenix for other destinations.

Maricopa County Human Services Department, Special Transportation Services (STS), offers transportation service to elderly, disabled, and low-income individuals. The service is provided Monday through Friday from 8:00 am to 4:00 pm. Reservations are made in advance and trips are provided on a space available basis. Trips can be for medical appointments, dialysis, shopping/personal, adult day care, social service appointments, and recreational purposes. STS also provides senior transportation to local senior centers and delivers noon meals to homebound individuals. These services are very important to residents in rural areas, as elderly, disabled, and low-income individuals are less likely to be able to own or operate a vehicle. It is hoped that funding for STS will continue and possibly even increase hours of operation, as it is the only means of transport for a substantial percentage of the planning area population and will continue to be into the future.

Maricopa County Public Health Department, Office of Family Health, offers transportation service to certain special needs clients, based on availability of vehicles. One example is the Babymobile, a 14-passenger van used to transport women to their prenatal care visits or to transport a child to a doctor appointment.

The Southern Pacific Railroad maintains a line through the State Route 85 Corridor area, running northeast towards Phoenix. The line traverses the area in the vicinity of the Buckeye Canal and runs northeast across the planning area. General merchandise, mineral resources, and goods are transported on this line. A second Southern Pacific Railroad line runs across the southern tip of the planning area through Gila Bend towards Casa Grande. The line runs parallel to Interstate 8 and Maricopa Road.

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### ENVIRONMENT/ENVIRONMENTAL EFFECTS

An important principle of the State Route 85 Corridor Area Plan is the maintenance and improvement of the existing physical environment. Therefore, a thorough understanding of major natural and cultural resources is necessary and will be accomplished by analyzing several environmental features.

#### Environmental Features

The following environmental features describe those natural and human-made elements that affect planning area growth and development:

- Physical Setting
- Topography
- Climate
- Soils
- Geology
- Air and noise quality
- Hydrology
- Vegetation
- Wildlife
- Archaeology

#### *Physical Setting*

The State Route 85 Corridor study area is located in the south and west portion of Maricopa County (**Figure 8**). The study area's northern boundary is Interstate 10, the southern boundary is Interstate 8, and the eastern and western boundaries run parallel to State Route 85 and extend five miles east and west.

These boundaries border the Maricopa County Tonopah/Arlington Area Plan to the west and the Little Rainbow Valley Area Plan to the east and allow an almost contiguous planning area for the central part of Maricopa County. Some of the distinctive features located at least partially within the planning area include the Gila River, Gila Bend Indian Reservation, Robbins Butte Wildlife Area, Buckeye Hills Recreation Area, North Maricopa Mountains Wilderness Area, Sonoran Desert National Monument, Lewis State Prison, Southwest Regional Juvenile Correctional Complex, Southwest Regional Landfill, Roosevelt Irrigation District Canal, Buckeye Canal, Arlington Canal, Gila Bend Canal, Enterprise Canal, and State Route 85. The planning area encompasses approximately 360 square miles of varying landscapes, with the northern and southern areas characterized by urban and suburban development patterns, and the central part of the area predominately rural.

#### *Topography*

Elevation in the planning area is illustrated in **Figure 9**. The planning area is composed of three distinct landforms: floodplains, rolling hills, and steep rocky cliffs. The Gila River flows from east to west in the northern part of the planning area, north to south in the central and southern part of the planning area, and is generally the lowest point in elevation at approximately 900 feet above sea level. Buckeye Hills and Robbins Butte lie to the south of the Gila River. The highest point in the Buckeye Hills is 1,952 feet, while Robbins Butte reaches 1,179 feet. The North Maricopa Mountains are located in the central part of the planning area

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and reach 2,813 feet above sea level. Directly west of these mountains lies Woolsey Peak, towering 3,171 above and to the west of the Gila River.

The planning area is characterized by three slope categories: 0% to 1%, 1% to 15%, and 15%+. The majority of the area (63.8%) contains slopes of 0% to 1%. The largely agricultural areas north of the Gila River and surrounding the Gila River in the central part of the planning area have slopes of 0% to 1%. Another 27.7% of the area exhibits slopes of 1% to 15%, while slopes of 15% or more can be found in 8.5% of the area. The three irrigation canals that cross the north portion of the planning area exhibit slopes of 3% to 4%.

### *Climate*

Hot and dry summers, with generally short, mild winters, are typical of the planning area. Precipitation is less than 9 inches annually with frequent prolonged droughts. Daytime temperatures reach or exceed 100° Fahrenheit about 115 days each year. Temperatures from June through September are usually in the 100s, while temperatures from October through May range from the 40s through the 90s.

Annual precipitation averages between 7 and 9 inches, but varies significantly from year to year. As much as 14 inches of precipitation have been recorded in some years, but less than 2 inches in others. The greatest amount of precipitation usually falls in July and August.

### *Soils*

Soil types and their location have a direct effect on potential land uses. Indeed, development type, quality, and character can be significantly influenced by soil properties. Important soil properties include permeability, compaction, shear strength, shrink-swell potential, plasticity, salinity, susceptibility to erosion, corrosiveness, and the amount and type of cementation.

Soil types are normally categorized by *associations*. Soil associations describe a group of soils that occur in a repeating pattern and usually consist of one or more dominant soils along with at least one minor soil. The name of an association consists of the names of the dominant soils, joined by a hyphen. There are eight major soil associations in the study area and their characteristics are described later in this element. Because soil characteristics vary, testing should be done prior to development to determine if the soils pose problems for septic tanks, water and sewer lines, and/or building and road foundations.

**Figure 10 - Soils** shows the eight major soil associations in the planning area. These soils and their characteristics are as follows:

- A) Gilman-Estrella-Avondale Association: Well-drained soils consisting of deep, moderately permeable, coarse to fine, loamy material formed in mixed recent alluvium on floodplains, low terraces, and alluvial fans
- B) Antho-Valencia Association: Well-drained soils on nearly level sandy loams on valley plains and low stream terraces
- C) Carrizo-Brios Association: Deep and excessively drained soils on floodplains, alluvial fans, stream channels, and low stream terraces. Slopes range from 0 to 3 percent and permeability is very rapid

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- D) Torrifluents Association: Nearly level to gently sloping soils that are gravelly, cobbly, and stony throughout on recent alluvial fans at the base of mountains
- E) Rillito-Gunsight-Perryville Association: Well-drained soils on nearly level to moderately steep gravelly loams and loams on old alluvial fans and valley plains
- F) Laveen-Coolidge Association: Well-drained soil on nearly level sandy and clay loams on old alluvial fans and valley plains
- G) Casa Grande-Harqua Association: Well-drained soils on nearly level to sloping, saline-alkali, sandy, and gravelly clay loams on valley plains
- H) Cherioni-Rock Outcrop Association: Well-drained soils on gently sloping to very steep, very gravelly loams and rock outcrop mountains, buttes, and low hills

The four primary soil properties that effect development suitability are permeability, available water capacity, shrink-swell potential, and corrosivity.

### Permeability

Permeability refers to the rate at which water moves through soil and is usually determined by soil texture. Soils with slow permeability pose severe limitations for septic tank absorption fields. Likewise, soils with slow permeability do not allow adequate absorption of effluent from tile or perforated pipe into natural soil.

### Available Water Capacity

Refers to the amount of water a soil can hold that is available for plants. The ability of soil to hold water helps determine the type of plants that can be used for landscaping and lawns. It should be noted that these soil limitations do not prevent the use of imported topsoil for landscaping purposes provided that it has a high available water capacity.

### Shrink-Swell Potential

Identifies the capacity of a soil to expand or shrink as the moisture content is increased or decreased. Soils with a high percentage of clay tend to have a high shrink-swell capacity that can contribute to structural problems for buildings and roads.

### Corrosivity

Refers to a soil's capacity to induce chemical reactions that will corrode or weaken metals and concrete. Corrosive soils may create problems for underground utilities if installed unprotected.

**Table 10** displays development constraints associated with the eight soil associations found in the planning area.

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**Table 10 Soil Association Development Constraints**

<b>Activity</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>
<b>Septic tank absorption fields</b>	Slight	Slight	Severe	Moderate	Slight	Slight	Severe	Severe
<b>Dwellings without basements</b>	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Severe
<b>Dwellings with basements</b>	Slight	Slight	Severe	Moderate to severe	Moderate to severe	Slight	Moderate	Severe
<b>Local roads and streets</b>	Moderate	Slight	Severe	Slight to moderate	Slight	Moderate	Severe	Severe
<b>Small commercial buildings</b>	Moderate	Moderate	Severe	Moderate	Slight to moderate	Slight	Moderate	Severe
<b>Lawns and landscaping</b>	Slight to moderate	Slight	Severe	Severe	Slight to moderate	Slight	Severe	Severe

A) Gilman-Estrella-Avondale Association  
 B) Antho-Valencia Association  
 C) Carrizo-Brios Association  
 D) Torrifluents Association

E) Rillito-Gunsight-Perryville Association  
 F) Laveen-Coolidge Association  
 G) Casa Grande-Harqua Association  
 H) Cherioni-Rock Outcrop Association

Source: U.S. Department of Agriculture, Soil Conservation Service, Soil Survey

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### ***Geology***

The planning area lies in the Sonoran Desert section of the Basin and Range Province. The Sonoran Desert section is characterized by mountain ranges that are smaller and perhaps older than in other sections of the Basin and Range Province. The planning area lies at an elevation of approximately 900 feet and is bounded on the north by the White Tank Mountains. The Buckeye Hills, part of the North Maricopa Mountains, and the eastern-most portion of the Gila Bend Mountains are also within the planning area. These mountains are composed of fine to coarse-grained igneous intrusive rocks, schist, and gneiss.

The geology of the area north of the Gila River and south of Interstate 10 consists of poorly sorted, moderately bedded gravel and sand, as well as basin floor deposits that are primarily sand, silt, and clay. Unconsolidated deposits of fine-grained well-sorted sediment and gravelly channel, terrace, and alluvial-fan deposits on middle and upper piedmonts can be found in this area to a lesser degree. Sand, silt, and clay make up the floodplains of the Gila River, while unconsolidated to weakly consolidated sand and gravel are found in the river channels. South of the Gila River as the land slopes upward into the Buckeye Hills, a wide variety of granitic rocks, including granite, granodiorite, tonalite, quartz diorite, diorite, and gabbro, are found. These rocks can also be found in the North Maricopa Mountains and in the Gila Bend Mountains located farther south in the planning area. At the southeastern foot of the Buckeye Hills, coarse alluvial fan deposits are found that are moderately to strongly consolidated and commonly coarser grained sediment than younger deposits in the same area.

Adjacent to and west of State Route 85, between Patterson Road and Wood Road, an area of unconsolidated deposits of fine-grained well-sorted sediment and including gravelly channel, terrace, and alluvial-fan deposits on middle and upper piedmonts are found. The broad flat agricultural lands along the Gila River south of the Buckeye Hills and the valleys between State Route 85, the North Maricopa Mountains, and the Palo Verde Hills consist of coarse, poorly sorted alluvial-fan and terrace deposits on middle and upper piedmonts and along large drainages, sand, silt, and clay on alluvial plains and playas, and wind-blown sand deposits.

### ***Air Quality***

Air quality is affected by many different activities. Air pollution sources may be mobile, such as motor vehicle use, or stationary, such as roads, agricultural fields, construction sites, and vacant lots. Vehicle generated emissions include carbon monoxide, nitrogen oxides, and hydrocarbons.

Carbon monoxide concentrations that are hazardous to health with prolonged exposure can accumulate under certain atmospheric and topographic conditions. Wind-borne particulates such as dust, dry chemicals, and microscopic debris can originate from vacant lots, construction sites, agricultural fields, and roads. Ozone originates from both mobile and stationary sources and derives from atmospheric chemical reactions between nitrogen oxides, hydrocarbons, and ultraviolet light. Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) originates from both mobile and stationary sources. The primary sources of PM<sub>10</sub>, which are fine particles suspended in the atmosphere, include construction dust, engine exhaust, road dust from both paved and unpaved roads, agricultural dust and vacant land dust. The primary source of PM<sub>2.5</sub>, which are minute particles smaller than PM<sub>10</sub> suspended in the atmosphere, is vehicular engine exhaust. The planning area does not fall within the non-attainment areas for ozone and carbon monoxide that includes most of metropolitan Phoenix. However, the northern portion of the planning area does fall within the non-attainment area for PM<sub>10</sub>.

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### *Noise Concerns*

Noise pollution presents another potential problem. Noise from airports, roadways, and construction can be significant. Negative effects such as hearing loss, sleep loss, stress, and high blood pressure can result from increased noise. In the planning area, the primary sources of noise include the Town of Buckeye airport, the Town of Gila Bend airport, and vehicular traffic on State Route 85, MC 85, Interstate 10, and Interstate 8. *Eye to the Future 2020*, the Maricopa County Comprehensive Plan, addresses the need for compatible land use planning around airports, along highways, and around other noise generating operations.

### *Hydrology*

Water use, water conservation, drainage, flooding, and water quality greatly impact an area's potential for physical, social and economic growth, as well as the quality of life of the inhabitants of the area.

### *Water Supplies*

Water supplies in the planning area include surface water, Central Arizona Project (CAP) water, groundwater, and effluent. Surface water can be found in the Gila River, and to a lesser degree in the Hassayampa River. The rivers carry natural flow, effluent, and Salt River Project irrigation water. Groundwater is found primarily in basin-fill sediments. The planning area lies within the Gila Bend Basin and the West Salt River Valley Subbasin. Groundwater in the planning area is used primarily for irrigation of agricultural land and by individual exempt wells. Buckeye and Gila Bend use approximately 2,200 acre feet of groundwater per year. The CAP allocation in the planning area is approximately 70 acre feet per year. Effluent is used for crop irrigation, maintaining riparian areas, and by the Palo Verde Nuclear Generating Station, located outside the planning area. Detailed information about water resources in the planning area can be found in the Water Resources element of this area plan.

### *Water Quality*

Groundwater quality in the planning area is generally characterized as poor, with high concentrations of fluoride, sulfate, and total dissolved solids. Irrigation water seeps downward in irrigated areas, where dissolved solids concentrations can be as much as five times as in the original irrigation water due to concentration by evaporation and plant use. Although high levels of agricultural pesticides have been detected in groundwater in the planning area, none of the concentrations exceeded drinking water standards or guidelines. However, it is known that pesticides can cause birth defects, nerve damage, cancer, and disruption of the endocrine system in humans. The health effects on humans are not thoroughly understood, particularly when estimating risks of exposure to mixtures of pesticides in water.

Surface water quality in the planning area could be affected by runoff from agricultural fields, construction sites, urban development, industry, mining activities, landfills, drinking water treatment plants, wastewater treatment plants, and natural sources.<sup>7</sup> Metals, total dissolved solids, turbidity, suspended solids, pathogens, and pesticides are contaminants associated with surface water pollution. Due to the location of the planning area, surface runoff from the East and West Salt River Valleys tends to move into the area and create a waterlogged condition consisting primarily of poor quality water. Dissolved solids carried into the planning area, as well as that which is created in the area, accumulate in soils and groundwater in irrigated agricultural and urban areas. Nitrogen and phosphorus from use of fertilizers, feedlots, dairies,

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<sup>7</sup> Arizona Water Quality Assessment, Arizona Department of Environmental Quality, pgs. 59, 117, and 122. 1994

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human waste, and industrial waste are much greater in the planning area than in other areas with little or no agricultural or urban land use. Pesticide concentrations in the Hassayampa River near its confluence with the Gila River are among the highest in the nation, due in part to the treated effluent that enters the Gila River from the wastewater treatment plant upstream and to the irrigation return flow that enters the Hassayampa River north of Arlington from the agricultural lands in the northern portion of the planning area. Some of the insecticides that exceeded aquatic-life guidelines include DDE, dinoseb, malathion, diazinon and parathion, presenting a potential hazard to aquatic life.

Groundwater in the planning area can generally be treated to drinking water quality. Surface water is commonly used for agricultural and industrial uses and not for drinking purposes. Both are valuable water resources that need to be preserved for future use.

### *Vegetation*

The planning area is located within the Lower Colorado River Sonoran Desertscrub area of the Sonoran Desert. Three native plant communities can be found in this area: Palo Verde-Saguaro, Creosote, and Riparian. The Palo Verde-Saguaro Community, the most scenic of the Sonoran Desert communities, is found in the undeveloped mountainous areas within the planning area. Trees in the Palo Verde-Saguaro Community include palo verde (*Cercidium* spp.), catclaw (*Acacia* spp.), and mesquite (*Prosopis* spp.). Shrubs found in this community are creosote (*Larrea tridentate*), bursage (*Ambrosia deltoidea*), and saltbush (*Atriplex* spp.). Cacti include giant saguaro (*Carnegiea gigantea*), barrel (*Ferocactus acanthodes*), hedgehog (*Echinocereus engelmannii*), prickly pear (*Opuntia* spp.), and cholla (*Opuntia* spp.). This vegetative community supports a number of diverse wildlife species, provides scenic enhancement to the area, and should be protected wherever possible.

The Creosote Community, located in valleys and on the lower, more arid portions of the planning area, creates a uniform landscape over large areas. Larger trees, shrubs, and cacti are absent, except along washes where ironwood (*Olneya tesota*), mesquite, palo verde, and catclaw may grow. The ironwood plays an important role in supporting the biodiversity of over 500 Sonoran Desert plant and animal species.

The Riparian Community is found along the Gila River as it traverses the northern portion of the planning area from east to west, exits the planning area and turns south, then reenters the planning area and continues south to the Gila Bend area. Riparian habitat provides abundant, lush vegetation that supports local wildlife and fish species, as well as those species traveling through the area. The Gila River drainage corridor is an environmentally sensitive area and should be considered for protection as development occurs.

The Riparian Community is concentrated along drainage channels and is generally composed of tall dense stands of mesquite, catclaw, desert willow (*Chilopsis linearis*), blue palo verde, Goodding willow (*Salix gooddingii*), and cottonwood (*Populus fremontii*). The Riparian Community along the Gila River includes plant species not found elsewhere in the planning area, such as salt cedar (*Tamarix chinensis*), velvet mesquite (*Prosopis velutina*), saltbush (*Atriplex* spp.), and seepweed (*Suaeda torreyana*). Currently salt cedar dominates much of the riparian and wetland in the planning area. Salt cedar was originally imported from Europe in the nineteenth century for use in erosion control. Difficult to eradicate, salt cedar stands have lower wildlife value than native riparian species. However, they provide high-quality nesting sites for white-winged doves (*Zenaida asiatica*). The Riparian Community has high scenic value

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and is unique within the desert. Especially important for erosion control, natural flood control, and as wildlife habitat, efforts should be made to protect these areas from development.

Residential landscapes constitute another plant category in the planning area. Restricted generally to the urban areas in and around the towns of Buckeye and Gila Bend, these landscapes consist primarily of non-native trees, shrubs, vines and groundcovers.

There may be particular native plant species that by law (Arizona Revised Statutes, Title 3, Chapter 7, Article 1) can only be moved from one location to another after applying for a state permit. Removing or destroying protected species from public and private property requires notification to the Arizona Department of Agriculture. Some protected plants within this area include:

### *Cacti:*

Barrel  
Cholla  
Hedgehog  
Mammillaria  
Night Blooming Cereus  
Pin Cushion  
Prickly Pear  
Saguaro

### *Trees, Shrubs*

Agave (Century Plant)  
Crucifixion Thorn  
Desert Holly  
Desert Spoon (Sotol)  
Ironwood Tree  
Jerusalem Thorn  
Mesquite  
Ocotillo  
Palo Verde  
Smoke Tree  
Yucca

### *Wildlife*

The riparian habitat provided by the water in the Gila River is a major resource that supports a large number of mammals, reptiles, and birds not usually found within the Lower Colorado River Sonoran Desertscrub area of the Sonoran Desert. The predominance of woody vegetation creates hiding places, roosting perches, and thermal cover, and the readily available water in the stream channel provides a vital ingredient for wildlife survival. Some fish species found in riparian habitat in the planning area include: Sonora sucker (*Catostomus insignis*), desert sucker (*Catostomus clarki*), threadfin shad (*Dorosoma petenense*), carp (*Cyprinus carpio*), Eastern channel catfish (*Ictalurus punctatus*), Gila topminnow (*Poeciliopsis occidentalis*), razorback sucker (*Xyrauchen texanus*), and desert pupfish (*Cyprinodon macularius*). Mammals include black-tailed jackrabbit (*Lepus californicus*), beaver (*Castor canadensis*), raccoon (*Procyon lotor*), badger (*Taxidea taxus*), and bobcat (*Lynx rufus*). Reptiles and amphibians include tiger salamander (*Ambystoma tigrinum*), leopard frog (*Rana pipiens*), bullfrog (*Rana catesbeiana*), common kingsnake (*Lampropeltis getulus*), and checkered garter snake (*Thamnophis marcianus*). Birds found in riparian habitat include double crested cormorant (*Phalacrocorax auritus*), green heron (*Butorides virescens*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), clapper rail (*Rallus longirostris*), and Cooper's hawk (*Accipiter cooperii*).

Common wildlife species found in the desert areas, mountainous areas, and agricultural areas of the planning region include desert cottontail (*Sylvilagus auduboni*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert pocket mouse (*Perognathus amplus*), desert kangaroo rat (*Dipodomys deserti*), curved-bill thrasher (*Toxostoma curvirostre*), banded sand

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snake (*Chilomeniscus cinctus*), Southwestern willow flycatcher (*Empidonax traillii extimus*), cactus ferruginous pygmy-owl (*Glaucidium brasilianum*), Harris' hawk (*Parabuteo unicinctus*), javelina (*Tayassu tajacu*), mule deer (*Odocoileus hemionus*), desert bighorn sheep (*Ovis canadensis*), and coyote (*Canis latrans*).

IN THE PLANNING AREA, THE SONORAN DESERT TORTOISE (*Gopherus agassizii*), THE WESTERN YELLOW-BILLED CUCKOO (*COCCYZUS AMERICANUS OCCIDENTALIS*), AND THE YUMA CLAPPER RAIL (*RALLUS LONGIROSTRIS YUMANENSIS*) ~~is~~ ARE considered a Wildlife of Special Concern by the Arizona Game and Fish Department. The Bureau of Land Management has determined that a portion of the planning area is Category II, Desert Tortoise Habitat. Category II habitat goals are to maintain a stable, viable population and to halt further declines in tortoise habitat values. Habitat FOR THE SONORAN DESERT TORTOISE exists both east and west of State Route 85 in the vicinity of and south of Buckeye Hills Recreation Area. Special consideration should be given to protect desert tortoise habitat. ADDITIONALLY, THE BLM LISTS THE CAVE MYOTIS (*MYOTIS VELIFER*) AS A SENSITIVE SPECIES.

### *Archaeology*

Arizona and especially Maricopa County has one of the highest concentrations of archaeological sites in the United States. Over 800 Hohokam sites have been recorded within the Salt River Valley. The State Historic Preservation Office (SHPO) keeps detailed files on locations and surveys that have been conducted in the planning area, although only members of federal, state, and local government agencies can examine these files. Federal and state agencies, if involved in projects that will affect undisturbed areas, are required to consult with SHPO to determine if historic or archaeological properties exist in the project area and/or if a survey is necessary.

A cultural resources survey was performed in 1995 by the Arizona Department of Transportation along the State Route 85 right-of-way. Sixty-six new cultural sites were located and recorded. Of these new sites, 48 contained trails or trail segments with associated artifacts and features. The remaining sites consisted of prehistoric artifact scatters and historic features or structures. One site that is listed on the National Register of Historic Places is the southbound State Route 85 bridge over the Union Pacific Railroad in Gila Bend.

The American Indian Religious Freedom Act of 1978 (AIRFA) protects any site or place having religious, sacred, or ceremonial aspects or components according to American Indian traditional beliefs. Given the presence of the Gila River, it is highly likely that sites protected under AIRFA exist in the planning area.

The high potential for the existence of significant historic or archaeological sites in the planning area indicates that an archaeological/historical review should be performed prior to development, excavation, or grading to determine the presence of these sites. Preservation precautions should be taken where necessary.

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## ECONOMIC DEVELOPMENT

### Social and Economic Characteristics

The social and economic characteristics of the State Route 85 Corridor planning area are described in the following five segments:

- Area Economy/Economic Base
- Housing
- Residential, Commercial, and Industrial Demand
- Economic Base Potential
- Policy Implications

#### *Area Economy/Economic Base*

Two types of markets provide income and employment within any economy. These include the local market, or the non-basic sector, which sells products to consumers within a city or area, and the export market or basic sector, which sells products to consumers outside a city or area. Economic theory purports that a region must produce and export goods and/or services to an outside market in order to increase local income.

The planning area economy is closely linked to the larger Phoenix metropolitan area. Major local employers provide a variety of jobs although many residents work outside the West Valley. Nevertheless, the State Route 85 Corridor area enjoys a healthy economic base. Among the area's industries are those in product distribution, home manufacturing, sand and gravel extraction, and various service industries.

#### Agriculture

Although agriculture accounts for only a small percentage of total employment in any area, the importance of farming and related activities in the planning area is immeasurable. Historically, the planning area has depended on farming as a significant part of the economy and the culture. Even today, large tracts of agricultural land are found throughout the planning area. However, some portions of agricultural land have been and will continue to be converted to other uses. The preservation of agricultural land with an agricultural or conservation easement for protection of open space or native species habitat or to preserve the historical, architectural, archaeological, or cultural aspects of the land now exists due to the passage of agriculture and conservation easement legislation. In addition, the transformation of farms that have historically grown crops for animal feed and manufacturing purposes into pick-your-own produce farms that can also be used for public education and entertainment purposes (i.e., classes for schoolchildren and family festivals) would allow opportunities for the area farms to continue as they have in the past.

#### Economic Development Corridors

The planning area is attractive to business and industry because of its proximity to major markets in Phoenix, Los Angeles, and the southwestern United States. The communities of Buckeye and Gila Bend are members of the Western Maricopa Enterprise Zone that is made up of 14 towns west of metropolitan Phoenix. The goal of the Western Maricopa Enterprise Zone is to improve the economies of areas involved by enhancing opportunities for private investment within the enterprise zone. The two benefits provided by the enterprise zone program are income or premium tax credits and property tax benefits. The income and

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premium tax credits are provided for net increases in qualified employment positions at a site located in an enterprise zone. Credits may be up to \$3,000 per qualified employment position over a three-year period. A qualified employment position must be a full-time permanent job, must pay an hourly wage above the "wage offer by county", and must provide health insurance to employees for which the employer pays at least 50 percent. Property tax benefits are available for qualified manufacturing businesses locating or expanding facilities in an enterprise zone. An assessment ratio of five percent on all personal and real property in the enterprise zone is available to a manufacturer if it is minority-owned, woman-owned, or small and it makes an investment in fixed assets in the enterprise zone after December 31, 1995.<sup>8</sup>

~~The Town of Buckeye has long term plans for commercial/retail and light industrial development bordering Interstate 10 and along State Route 85 from Interstate 10 south to the Gila River. Additionally, the Town of Gila Bend has heavy industrial uses planned along the southeast side of State Route 85, especially in the vicinity of the Gila Bend Municipal Airport.~~

### *Housing*

Over the last several years, THERE HAS BEEN growth in the planning area housing market ~~has been strong~~. Home prices are still considered relatively affordable, although housing costs are increasing rapidly. While home prices continue to increase, the West Valley, including the planning area, remains more affordable than other valley locations.

While reasonably priced in relation to other major metropolitan areas, housing affordability for low-income residents is becoming a problem. This is due not only to a significant increase in home prices, but also because the availability of affordable rental units has decreased. In addition, financing credit for construction and rehabilitation of quality, affordable rental and owner-occupied housing is lacking. Supplying more affordable housing is an important issue in the planning area and in Maricopa County, as approximately 12% of Maricopa County residents live below the federal poverty line.

### *Residential, Commercial, and Industrial Demand*

Using countywide averages and basing land use demand on projected population, the following calculations have been made for land absorption in both the incorporated and unincorporated planning area.

#### *Residential Demand*

It is estimated that there were approximately 5,520,547 housing units in 2000. Based on these figures, ~~7,350~~APPROXIMATELY 7,330 additional units will be required by 2020.

Predicting how much land is necessary to accommodate these additional units is difficult due to uncertainties in future land use and density patterns. However, assuming a density rate of 2 dwelling units per acre, approximately 3,675,665 additional acres will be needed to accommodate residential demand over the next 20 years. Predicting residential distribution patterns among incorporated and unincorporated areas is also difficult due to future annexations. However, given the current trend of residential development occurring mostly within municipalities, it is assumed that incorporated areas will receive most of the residential housing units.

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<sup>8</sup> Arizona Department of Commerce, <http://www.commerce.state.az.us>

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Estimated commercial land use demand is based on projected resident population increase. As noted earlier, population projections show an estimated 32,700 planning area residents by the year 2020. Based on this projection and using the ratios listed in **Table 11**, it is estimated that approximately 340 acres of retail and general commercial land will be needed to support area population.

**Table 11 Recommended Commercial/Industrial Land Use Ratios**

Land Use	Acres of Land Per 1000 People
Commercial	10.5
Retail	5.5
General	5.0
Industrial	8.0

Source: Maricopa County Subdivision Regulations-Administrative Guidelines, 1990

### Commercial/Industrial Demand

Demand for industrial land is calculated using the same method as commercial land. Based on a year 2020 resident population projection of 32,700, approximately 260 acres of industrial land will be required. As with residential demand, estimating the quantity and location (e.g. incorporated vs. unincorporated areas) of commercial and industrial land is difficult due to the uncertainty of future annexations, density patterns, and economic conditions. However, current patterns dictate that industrial and commercial activity is attracted to areas in and near municipal population cores. Therefore, a majority of these uses will likely be established in incorporated areas.

The Area Plan uses a variety of criteria to identify locations for future planning area employment centers. Such criteria include:

- Access to transportation networks and markets
- Compatibility with surrounding areas
- Sufficient areas of vacant land
- Matching sites to different types of employment needs
- Availability of utilities
- Access to labor force
- Location choices
- Public visibility
- Appropriate terrain

### *Economic Base Potential*

Because of its size, the planning area's economic potential varies according to location. Therefore, a brief examination of these locations is warranted.

#### North

The northern portion of the planning area has substantial economic potential due to the proximity of Interstate 10 and State Route 85. Because of the access the freeway and highway

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provides to southwestern United States markets, it will likely attract additional manufacturing and distribution activities.

### Central

The central portion of the planning area has limited potential for economic growth due to the amount of land set aside for preservation as wilderness area, national monument, and a major mile-wide utility corridor that exists along the east side of State Route 85, between the highway and the Sonoran Desert National Monument. However, within this portion of the planning area, there are approximately 1,900 acres of BLM land that has been indicated for disposal by sale or exchange and approximately 9,500 acres of State Trust land that may be sold or leased and developed.

### South

The southern portion of the planning area also has significant economic potential due to the proximity of Interstate 8 and State Route 85. The freeway and highway are frequently used as a bypass for the Phoenix metropolitan area and therefore, experience a substantial amount of traffic.

### *Policy Implications*

#### Employment Corridors

As growth and development increase, appropriate locations for future employment corridors will need to be identified and should provide diverse employment opportunities to create a better jobs/housing balance. Employment corridors should also take advantage of the area's strategic location and transportation system that provide competitive access to local and regional markets.

#### Residential Development

Continued residential development will also impact the region's environment and character. As such, policies and land use guidelines should encourage suitable locations for new residences. In addition, a variety of incentives, such as transfer of development rights, density and floor area ratio bonuses, flexible standard agreements, and development agreements can be used to both preserve sensitive areas and reward developers.

#### Coordinated & Comprehensive Economic Development Strategy

To successfully expand and diversify the area's economy, cooperative and coordinated strategies are necessary. Maricopa County should actively participate in and support such strategies and programs.

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### GROWTH AREAS

Accommodating growth in an efficient and functional manner is essential for the State Route 85 Corridor planning area to retain its unique agricultural lifestyle and rural character. But besides encouraging efficient growth patterns, Maricopa County also strives to achieve a balanced development pattern whereby housing and employment are more integrated rather than separated. Such integration helps reduce traffic congestion and infrastructure costs, and makes multi-modal transportation and natural resource conservation more likely. As always, Maricopa County encourages innovative growth and development to meet the needs of Maricopa County residents. Further, Maricopa County encourages phasing development to coincide with the extension of urban services.

The Growth Areas element establishes guidelines for promoting when and where growth should occur. As noted in the Land Use element, Maricopa County encourages urban growth within the urban service area where services, infrastructure, and facilities are readily available to serve resident's needs. Most of the urban service area is located within the General Plan Development Areas for the towns of Buckeye and Gila Bend. Those areas outside of the urban service area are generally not suitable for urban type growth (i.e. commercial, employment, and residential density greater than 1 dwelling unit per acre) unless it can be demonstrated that services and infrastructure are available or will be provided, but are generally suitable for rural growth that is consistent with the underlying zoning.

The Growth Areas element is important to the planning area's future because it allows the area to grow in an orderly and fiscally responsible manner that is sensitive to the natural environment and residents' quality of life. This is the type of growth that will keep Maricopa County economically, socially, and environmentally successful for many years to come.

### Development Pattern Analysis

#### *Present*

The planning area is largely devoted to agriculture; however, some industry, such as Wal-Mart Distribution, employing 800 people, Schult Homes, employing 230 people, Rip Griffin Travel Center, with 180 employees, various sand and gravel operations, and a proposed City of Phoenix landfill provide employment opportunities for residents of the area. The State of Arizona Lewis Prison Complex is also located in the planning area, along the west side of State Route 85, south of El Paso Gasline Road. The prison currently has the capacity to house 4,386 inmates and employs 1,060 people. When completed, the prison complex will have the capacity to house 4,736 inmates. Additionally, the Southwest Regional Juvenile Corrections Facility is located directly across State Route 85 from the prison. This facility houses 600 male juveniles, employs 260 people, and provides education, medical treatment, and counseling for inmates. Two power plants under construction in the Gila Bend area will add to employment opportunities in the southern portion of the planning area. Additionally, Palo Verde Nuclear Generating Station, located 15 miles west of the Town of Buckeye, employs 2,100 people.

#### *Future*

The planning area is expected to grow in the next 10 to 20 years, with a projected population in 2020 of approximately ~~32,500~~**32,700 PERSONS**, more than double the 2000 population of ~~15,174~~**15,273 PERSONS**. Most of this growth will occur in the Buckeye area. Additionally, residential housing units are expected to more than double in the same time period, from approximately 5,500 in 2000 to approximately 13,000 in 2020. With the completion of the

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State Route 85 expansion project in the next ten years, it is likely that land adjacent to the highway will develop to accommodate the needs of local residents, truck traffic, and tourists traveling through the area.

### **Projected Population and Land Use: State Route 85 Corridor Planning Area**

As noted earlier, the planning area as a whole is expected to grow in the foreseeable future. Using historic data compiled by the Maricopa Association of Governments, future population projections for the planning area are established using a trend extrapolation model.

To determine projected land use, several assumptions were made:

- 2,524 persons per household<sup>9</sup>
- One household equates to a single dwelling unit
- Average residential density per gross acre equals 2 dwelling units (per planning area Land Use Map)
- 8 acres per 1000 population for large-scale employment land use (per Maricopa County standards)
- 10.5 acres per 1000 population for commercial land use (typical)

The planning area has a current population of approximately 15,170. At 2,524 persons per household, the planning area will add approximately 7,357,330 dwelling units over the next 20 years. At 2 dwelling units per acre, this equates to approximately 3,675,665 acres of additional land needed to accommodate future residential development.

Besides residential development, the planning area will need approximately 600 acres of additional land to accommodate employment and commercial uses. When commercial and employment land use needs are combined with residential land use needs, the planning area will need to provide approximately 4,275,265 additional acres of land for growth and development.

It is important to note that these numbers should be used as a guide rather than definitive criteria. Various factors, such as changing economic conditions, demographic conditions, and land use patterns can alter population growth in the planning area. However, this overview does provide an historical foundation for determining future needs.

### **Growth Area Issues and Considerations**

Although significant growth is expected to continue for the foreseeable future, where and when growth occurs is determined by a variety of factors. Both natural and built features can impact growth, as can land ownership and existing infrastructure. However, public opinions regarding growth and development are also important in determining growth patterns. Included in this element is an overview of public issues, identified during the public participation process, regarding growth. Also included is a review of potential physical, built, and jurisdictional considerations that may affect future growth and development patterns.

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<sup>9</sup> Population, Housing Unit and Income Data by Traffic Analysis Zone 1990-2020, March 1993, MAG

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### *Growth Area Issues*

Stakeholders involved in the planning process were very helpful in identifying the following growth-related issues and concerns:

- Encourage preservation of open space and agricultural areas, especially from the southern boundary of Buckeye to the northern boundary of Gila Bend
- Provide for non-residential land uses from Interstate 10 south to Baseline Road
- Protect endangered and sensitive species
- Preserve significant visual amenities, such as the Gila Bend Mountains to the west, the North Maricopa Mountains to the east, and desert vistas along State Route 85
- Protect national monument and wilderness areas, historic trails and recreation areas
- Preserve water supply and quality
- Growth should occur in an orderly manner, with development in and adjacent to Buckeye and Gila Bend
- Have a plan in place for the location of future transmission line corridors and power plants

In general, stakeholders believe that the agricultural nature of the planning area will continue, although they realize that growth will occur in the future along State Route 85 and in the northern and southern portions of the planning area. Therefore, stakeholders in general believe that local jurisdictions can do a better job of ensuring that there are adequate facilities to accommodate growth, and that cooperation is necessary to ensure that growth occurs in an orderly fashion.

### *Growth Area Considerations*

Besides public attitudes about growth, there are also potential natural, built, and ownership constraints to growth. While not necessarily a complete list, this element presents a brief overview of some of these possible constraints.

#### Natural Considerations

##### Topography

The planning area varies considerably in terms of slope and elevation. Significant slope areas exist in the Buckeye Hills, the Gila Bend Mountains, and the North Maricopa Mountains. Maricopa County encourages preservation of significant slope areas, especially those above 15%. For areas over 15% slope, the Maricopa County Zoning Ordinance provides guidelines for development to protect public health, safety, and welfare, and to minimize impacts to the existing character of such areas.

##### Floodplains

Floodplains are those areas that are susceptible to flooding during significant rain events. The most common delineation is the Federal Emergency Management Agency 100-year floodplain. The 100-year flood is defined as the flood level having a 1% chance of occurring within a year. It is important to note that the 100-year flood may occur more often than once every 100 years, and that it is not the maximum flood that can occur along a waterway.

Flooding typically occurs in major drainages, but can also occur in and along canals. Within the planning area, there are at least 16,700 acres of land within the 100-year floodplain. An additional 13,000 acres are located within the floodway, which is a particular area of the floodplain that has restrictions on the type of development that can occur. *Eye to the Future 2020* contains policies that discourage development within the 100-year floodplain.

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### Water Supply

Water in the planning area comes from both groundwater and surface water sources. Groundwater is found in the West Salt River Valley Subbasin within the Arizona Department of Water Resource's Phoenix Active Management Area and in the Gila Bend Basin. Surface water is composed of treated wastewater and irrigation return flow in the Gila River. Additionally, a small amount of CAP water is allocated to the Town of Buckeye and the Water Utility of Greater Buckeye in the planning area. Growth in the planning area will affect water supplies in two ways. Treated wastewater supplies will increase as population increases and demand for potable water will also increase.

### Vegetation and Wildlife Habitat

The unique Sonoran Desert environment is well preserved and very accessible in the planning area. The area is home to various species of animals and plants that are found nowhere else in the world. As such, identifying and protecting critical species and environmentally sensitive areas is an important part of this area plan.

A variety of federal and state laws that protect biological resources help govern development. These include the Endangered Species Act, the Clean Water Act, the National Environmental Protection Act (NEPA), and the Arizona Native Plant law. A more in-depth discussion of vegetation and wildlife is found in the Environment/Environmental Effects element.

### Built Considerations

#### Infrastructure and Services

One of the most important considerations for growth is the availability of infrastructure and services. Both can dictate the type and timing of future development. The availability of infrastructure and services is especially important to support urban development.

One of the principles of *Eye to the Future 2020* is ensuring that growth occurs in an orderly and fiscally responsible manner. This includes ensuring that necessary infrastructure and services are available to meet the needs of future residents. When evaluating future urban development, Maricopa County analyzes whether the following urban services and infrastructure either exist or will be provided for future residents in a timely manner:

- All necessary roads
- All necessary flood control structures
- Adequate utilities (sewer, water, electric, natural gas, etc.)
- Adequate capacity and appropriate proximity to elementary, middle, and high schools
- Appropriate emergency service (police and fire) response time
- Proximity to library facilities
- Adequate supply and appropriate proximity to parks and open space
- Proximity to commercial and large-scale employment opportunities
- Proximity to hospital/emergency medical facilities
- Opportunities for multi-modal transportation
- Other services and infrastructure on a case by case basis

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Locations having these services are known as the Urban Service Area.<sup>10</sup> The adequacy of infrastructure and services influences timing more than the specific locations of future growth. In addition, it is reasonable to conclude that since urban services more likely exist near urban areas, future growth is more feasible and appropriate near these locations.

### Noise Generating Operations

Careful consideration must also be given to noise generating operations. Significant and sustained noise can affect health, sleep, and learning patterns. Prolonged exposure to loud noise can cause general community annoyance and possibly a reduction in property values. There are many potential sources of noise throughout the planning area. A brief overview of several prominent noise generating operations follows.

#### A. Airports

Given their potential noise and safety hazards, airports can impact the type of development that is appropriate in certain areas of the county. In particular, the type of airport plays a significant role in determining the impact it has on surrounding areas, as well as the suitability of specific uses.

While the Buckeye Airport in the northwest corner of the planning area and the Gila Bend Municipal Airport in the southeast corner of the planning area create certain noise and safety issues, they also have an important economic impact on the planning area and Maricopa County in general. Compatible land use planning around these airports is an important consideration.

#### B. Major Roadways

Major roadways, especially highways, can generate significant vehicle noise. While potentially annoying for certain uses, major roadways are an important part of growth and development. Therefore, major roadways can and should play a role in determining the location of future growth, especially for commercial and employment type uses. Major roadways in the planning area include Interstate 10, Interstate 8, and State Route 85.

### Flood Control

The Flood Control District of Maricopa County (FCDMC) maintains flood control structures and facilities, including dams and underground conduits and improved channels. These flood control structures are located throughout the planning area in both urban and rural areas. The location of existing and future flood control structures can impact the location and type of future development. While flood control structures minimize the impacts of floods on human safety, health, and welfare, they can also influence where specific development is and is not appropriate.

### Ownership Considerations

Besides potential physical and built constraints, land ownership can also impact growth and development. Approximately 40% of the total 364 square miles in the planning area is held in private ownership. Of the remaining land, approximately 46% is managed by the Federal government (Department of the Interior), 12% by the State of Arizona, and less than 1% by Indian tribes. The remaining land is controlled by various entities, including Maricopa County. A brief overview of land ownership is included below.

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<sup>10</sup> Additional discussion of the Urban Service Area can be found in the 'Land Use' section of this area plan.

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### Federal

The Bureau of Land Management (BLM), an agency of the United States Department of the Interior, is the largest land manager in the planning area. Among the agency's responsibilities are the Sonoran Desert National Monument, which includes the North Maricopa Mountains Wilderness Area, and most of the land between the Gila River and El Paso Natural Gasline Road. Portions of the area BLM manages will not be available for development. However, some BLM land may be available for either disposal or exchange since many of these areas are administered according to the 1976 Federal Land Policy and Management Act. This law states that it is the policy of the United States to retain public lands in federal ownership unless it is determined, through a land use plan, that disposal of a particular parcel will serve the national interest. The BLM Lower Gila South Resource Management Plan Environmental Impact Statement, issued in August 1985, identified disposal lands in the planning area. These lands are shown in Figure 4 – Land Ownership. Generally, the parcels eligible for disposal border State Route 85 or the Sonoran Desert National Monument and are located in the southern half of the planning area. However, sale of such land must meet specific criteria. Land exchanges and land sales are described in detail in the Land Use element of this area plan, under the heading Public Land Ownership.

### State

The State of Arizona manages approximately 28,200 acres of land in the planning area. Under state charter, the Arizona State Land Department has the responsibility on behalf of beneficiaries to assure the highest and best use of Trust lands. The Federal Enabling Act and State Constitution mandate that fair market value must be obtained from all Trust land transactions that include sales and commercial leasing. All revenues derived from the sale of Trust lands are placed in a fund that is administered by the State Treasurer. Trust beneficiaries include the public schools, colleges, hospitals, charitable institutions, and specialized schools as well as other entities. Given this well-defined mission, development can and does occur on state-owned land. Figure 4 – Land Ownership illustrates areas of Trust land that may be sold in the future.

### Indian Communities

The Tohono O'odham Indian tribe owns approximately 530 acres of land in the planning area, located northwest of the Town of Gila Bend. While development can occur on tribal lands, it is subject to the rules and regulations of the respective Indian community.

### Maricopa County

The Maricopa County Parks and Recreation Department owns and manages approximately 5,000 acres of land in the planning area, including Buckeye Hills ~~Park~~RECREATION AREA. The park offers both passive and active recreation opportunities for all county residents. Because this is a public park, development is prohibited other than for park enhancements.

### *Development Considerations: Conclusion*

The potential constraints identified in this element will continue to affect the amount, type, and location of future development. Indeed, some of these constraints make development impossible, while others may only have a minimal effect. However, the combination of these potential constraints will continue to guide public and private decision makers in future land use decisions.

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### Growth Area Opportunities

Despite potential constraints, there are still many opportunities for continuing physical and socioeconomic growth in the planning area. The key, however, is to encourage growth that is done in a fiscally responsible and orderly manner. Maricopa County will continue to evaluate future development to ensure that it is consistent with infrastructure and service needs identified earlier in this report. Based primarily on the need for services and infrastructure, areas where growth and development should occur in the planning area have been identified.

#### *General Plan Development Areas*

The General Plan Development Area (GPDA) is unincorporated area that is likely to be annexed by a city or town in the future, and is therefore included in an adopted municipal general plan. Municipal general plans often provide specific recommendations for proposed land use.

Future growth is encouraged within GPDAs for several reasons. First, development in these areas will likely be annexed in the future. This is beneficial since municipalities have the ability to provide the types of services and infrastructure necessary to support urban development. Second, encouraging growth within the GPDAs is consistent with the goals, objectives, and policies already established in *Eye to the Future 2020*. Third, development in GPDAs represents orderly growth patterns that offer the best opportunity for mixed use development, as required under the Growing Smarter Act. Finally, development within the GPDAs helps Maricopa County fulfill other requirements under the Growing Smarter Act. As noted, these requirements include:

- Making multi-modal transportation circulation more efficient.
- Making infrastructure expansion more economical.
- Providing for rational land development patterns.
- Conserving significant natural resources and open space within growth areas, and coordinating their location to similar areas outside of growth areas.
- Promoting timely and financially sound infrastructure expansion.

Therefore, it is important to ~~center~~LOCATE future growth within the planning area from Interstate 10 south to the Gila River (included in the Town of Buckeye General Plan area), and from Interstate 8 to north of Watermelon Road (within the Gila Bend General Plan area). WHERE INFRASTRUCTURE EXPANSION IS MORE LIKELY TO OCCUR. Some ~~residential and~~ commercial development ~~will~~COULD also be located at the intersection of State Route 85 and Riggs Road, close to an existing employment center, Lewis State Prison.

#### *Development Master Plans*

*Eye to the Future 2020* recognizes Development Master Plans (DMPs), also known as master planned communities, as a preferred type of development because of the opportunity they provide for mixed land uses. Historically, DMPs have been allowed throughout Maricopa County, but Maricopa County will continue to evaluate DMPs on an individual basis to determine if they provide mixed use, multi-modal development opportunities as encouraged under Growing Smarter, and that they either have or will provide the necessary infrastructure and services to support urban type development.

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### *Growth Area Opportunities: Conclusion*

With the recognition of General Plan Development Areas, specific locations within the State Route 85 Corridor Area Plan and other area plans, and mixed use Development Master Plans as growth opportunities, Maricopa County reaffirms its commitment to orderly and fiscally responsible growth that is consistent with the requirements of the Growing Smarter Act. These growth opportunities also reaffirm Maricopa County's long-standing policy of coordination and cooperation with incorporated municipalities. Although these areas represent the best opportunities for urban style growth, future development will still be evaluated on an individual basis in concert with the potential constraints noted in this element. Also, because the areas best suited for mixed use, multi-modal urban growth will continue to change, Maricopa County will periodically review these growth areas and make changes to them as necessary.

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### OPEN SPACE

This element includes information and analysis of dedicated open space, proposed open space, land ownership considerations, and policy implications for the State Route 85 Corridor planning area. *Eye to the Future 2020*, the Maricopa County Comprehensive Plan, classifies open space as dedicated open space and proposed open space.

#### Background Plans

It is important to consider a number of regional and local open space planning efforts that may be relevant to State Route 85 Corridor open space and recreation planning.

##### *Town of Buckeye Open Space Element:*

Scenic protection, farmland conservancy, and protection of natural land and water resources are addressed in Buckeye's open space recommendations. The Town's open space element refers to *Desert Spaces, An Open Space Plan for the Maricopa Association of Governments* and *Environmentally Sensitive Development Areas: Policies and Guidelines* as sources that will provide useful references when planning for future open space. Buckeye intends to prepare a Parks and Recreation Master Plan that will address both a regional open space strategy and a plan for long-range municipal system recreational needs for persons of all ages. El Rio, the multi-purpose riparian preserve planned along the Gila River, is considered a top priority for the Town of Buckeye's open space improvements. This goal includes an emphasis on water features intended to attract tourism and support community economic development.

##### *Desert Spaces, An Open Space Plan for the Maricopa Association of Governments*

The Maricopa Association of Government's Regional Council adopted the *Desert Spaces* plan on October 25, 1995. The plan provides a non-regulatory framework for decision making and coordinating local and regional efforts toward establishing a viable open space system. The *Desert Spaces* plan identifies and recommends conservation and management strategies for natural resources and open spaces critical to the quality of life in Maricopa County. Existing parks and preserves are the foundation of the plan.

The *Desert Spaces* plan seeks to preserve, protect and enhance the mountains and foothills; rivers and washes; canals, cultural sites, upland desert vegetation, wildlife habitat, and existing parks and preserves. In the planning area, the primary rivers in the system are the Gila River and parts of the Hassayampa River. Also established in the plan are trails, which primarily follow rivers, washes, and canals and allow the public to enjoy a diversity of open spaces. Proposed trails are seen as linking and integrating existing parks and preserves throughout the region to each other. The plan encourages infill development in urbanized areas to reduce the need to develop undisturbed open space.

Two basic management approaches, based on public comments, are identified in the *Desert Spaces* plan for protecting priority areas and resources. *Conservation Areas* are public and private lands with outstanding open space value. Lands in this category are recommended for protection from development and its effects through policy amendment, easements, restrictions, and/or acquisition. An example within the State Route 85 Corridor planning area includes land in the Gila River flood plain. *Retention Areas* are public and private lands with high open space value and are recommended for sensitive development regulation. Examples in the planning area include lands near Rainbow Wash and Buckeye Hills.

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### *Area Drainage Master Plans and Watercourse Master Plans, Maricopa County*

The FCDMC conducts a proactive program of regional flood control studies called Area Drainage Master Studies that identify existing flood-prone areas and project future conditions. Area Drainage Master Plans (ADMPs) are being prepared for all developable portions of the county. The ADMPs will develop plans to mitigate flood hazards in the study area. Water Course Master Plans (WCMPs) are similar to ADMPs, except that a WCMP focuses more on the management of a particular river or wash and its banks and flood zones, while an ADMP focuses on flooding issues over a wider drainage area. The FCDMC has made a commitment that new flood control projects not only protect people and property, but also provide opportunities for multiple uses such as natural habitat protection, recreational facilities, and aesthetically pleasing designs.

There are two FCDMC projects within the boundaries of the State Route 85 Corridor planning area. The *El Rio Watercourse Master Plan* extends 17 miles along the Gila River, from the confluence of the Agua Fria River westward to State Route 85. Partners for the project include Maricopa County, Buckeye, Avondale, and Goodyear. The project began as a restoration effort to return the Gila River to its natural state while accomplishing the goal of improved flood control. Currently, the river is choked with salt cedar bushes and has become the dumping place for trash, abandoned automobiles, and appliances. With the efforts of the FCDMC and partnering cities, the river could become beautiful again and afford a recreational corridor that brings high-end economic development to West Valley communities.

The *Gila Bend Area Drainage Master Plan* Covers approximately 48 square miles, extending south from the Gila River as it bends near the Town of Gila Bend to the Barry M. Goldwater Range and from Citrus Valley Road on the west to east of the Gila Bend Municipal Airport. The plan identifies existing drainage problems, develops corrective measures, and develops a drainage plan that provides a tool for planning adequate storm water conveyance for future growth.

### *Maricopa County Regional Trail System Plan*

On September 4, 2002, the Board of Supervisors adopted the Maricopa County Regional Trail System: Phase One. The trail system's goals are to connect the County Park System, link recreational corridors around the Valley, and help preserve open space in the community. The project will capitalize on existing right-of-ways such as canals, parks, utility corridors, and flood control projects. The Maricopa County Trail Commission is developing community partnerships to make the program a reality. Phase One studied the connections between White Tank Mountain Regional Park, Lake Pleasant Regional Park, Cave Creek Recreation Area, and Spur Cross Ranch Conservation Area. When completed, a large non-motorized loop will be created around the County with spurs branching off into important open space and recreation areas. Some of the projects identified for possible incorporation in the regional trail system in or near the State Route 85 study area include:

- Maricopa County Regional Park System (e.g., Buckeye Hills ~~Park~~ **RECREATION AREA**)
- Desert Spaces Plan (adopted by MAG October, 1995)
- El Rio Master Plan (along the Gila River)

Existing and planned trails identified for the system cross through many jurisdictions, communities, and properties, so partnerships and agreements are important to creating the regional trail. Maricopa County will serve as the facilitator to bring all the different links

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together. Many types of recreational opportunities are anticipated for the trail system, including biking, walking, jogging, and horseback riding.

### *Regional Off-Street System Plan*

The 2001 *Regional Off Street SYSTEM Plan* (ROSS), initiated by MAG, reveals a region-wide system of off-street paths and trails for non-motorized transportation. Easements associated with canal banks, utility line easements, and flood control channels intersect numerous arterial streets where local daily destinations are typically located. The goal of the ROSS Plan is to help make bicycling and walking viable options for daily travel using off-street opportunities.

### **Open Space Issues**

Identification of the following regional and State Route 85 Corridor open space issues was made through research of Maricopa Open Space documents and input from planning area stakeholders:

- Agricultural preservation is an important component for surrounding communities (Buckeye and Gila Bend). However, questions as to how and where to preserve these lands are unresolved.
- Regional connectivity and linkages are important for both recreation and wildlife.
- Environmentally sensitive areas including mountains and slopes; rivers and washes; historic, cultural, and archeological resources; view corridors; Sonoran Desert; and wildlife habitat and ecosystems need to be protected.
- Buffers and/or transitional land uses between communities and potentially conflicting land uses are important in rural areas on the fringe of growing metropolitan areas.
- Implementation of existing plans (*Desert Spaces*; Maricopa County Regional Trail System Plan; proposed El Rio Master Plan) is important.
- BLM will need to update land use plans to reflect contemporary open space needs of communities.

### **Dedicated Open Space**

Dedicated open spaces are areas under public management, except State Trust Land, that have unique environmental and physical qualities. In the planning area, dedicated open space exists as regional parks and recreation and conservancy areas (wilderness areas, wildlife areas, national monuments, linear parks, and greenbelts), as well as neighborhood parks within the towns of Buckeye and Gila Bend. Linear parks or trails are important to all open space plans as they can provide both access and connections to open space areas.

### *Neighborhood Parks*

Neighborhood park is defined by the National Recreation and Park Association (NRPA) as an area of 15 or more acres that is suitable for intense recreational activities. However, neighborhood parks within municipalities generally range in size from two to ten acres. Community parks range in size from 10 to 25 acres. There are no dedicated neighborhood or community parks located in unincorporated Maricopa County; however, numerous neighborhood parks in this category are located in the planning area within the towns of Buckeye and Gila Bend. Buckeye neighborhood parks include Bayless Park, CENTRAL PARK, Earl Edgar Recreational Facility, Estrellas Garden Park, Kell Park, NARRAMORE PARK, Town Park, and Veterans Park. Gila Bend neighborhood parks include Burleson Park, Community

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Park, Unity Park, and the Gaitlin site. **Table 12** displays National Recreation and Parks Individual Park Type Standards for parks and recreation facilities.

**Table 12 Facilities Space Standards, Parks and Recreation Facilities**

Type	Space Requirements	Source
Minimal Park Standards	6¼ to 10½ acres/1,000 <sup>1</sup> persons	National Recreation and Parks Individual Park Type Standards
Playlots	0.1 to 0.3 acres/1,000 persons	Ibid
Neighborhood Playground	2.0 acres/1,000 persons	
Neighborhood Park	2.0 acres/1,000 persons	
Community Playfield	1 acre/1,000 persons	
Major Community Park	5 acres for 1,000 to 10,000 persons	
Open Space	.75 to 1 acre/1,000 persons	
Baseball (youth)	1.2 acres/5,000 persons	
Basketball	7,280 sq.ft./5,000 persons	
Swimming Pool	2.0 acres/20,000 persons	

<sup>1</sup>Using the NRPA standard applied to the existing planning area population, a park system, at a minimum, is composed of total acreage of 6¼ to 10½ acres developed open space per 1,000 persons.

### *Regional Parks and Recreational Areas*

The NRPA defines a regional park as an area 1,000 acres or larger that is suitable for nature-oriented recreation. The planning area has one regional park, Buckeye Hills ~~Park~~ RECREATION AREA that offers picnic facilities, restrooms without running water, and ~~various trails~~ A SMALL SHOOTING RANGE. Mountain elevations in the park range from 850 to 1,859 feet.

### *Conservancy Areas*

Conservancy areas are defined by the NRPA as areas set aside for the protection and management of natural or cultural environments with recreational use as a secondary objective. The conservancy areas within the State Route 85 Corridor planning area include BLM Wilderness Areas, the Fred J. Weiler Greenbelt, and Robbins Butte Wildlife Area (both managed by AGFD).

The Wilderness Act of 1964 defines a wilderness as an area "which is protected and managed so as to preserve its natural conditions and which 1) generally appears to have been affected primarily by the focus of nature, with the imprint of man's work substantially unnoticeable,

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2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation, 3) has at least five thousand acres of land or is of sufficient size to make practicable preservation, and 4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value”.<sup>11</sup>

Wilderness areas include 63,200 acre North Maricopa Mountains Wilderness Area that lies partially within the planning region. Mountain elevations range from 1,000 to 2,813 feet and support a variety of wildlife such as desert bighorn sheep, desert tortoise, coyote, bobcat, fox, deer, and quail. The Butterfield Overland Stage Road runs through the southern boundary. This historic road represents the remains of a mail route that ran from Missouri to California from 1858 to 1861. The 64,000 acre Woolsey Peak Wilderness Area lies just west of the planning region. Other wilderness areas close to the planning area include South Maricopa Mountains Wilderness Area and Signal Mountain Wilderness Area. The Fred J. Weiler Greenbelt encompasses approximately 63,000 acres extending along the Gila River from the Sierra Estrella Regional Park to twelve miles west of Dateland, Arizona. The greenbelt is a federally designated area for wildlife habitat, flood and erosion control, and recreation opportunities.

Regional wildlife areas include the Robbins Butte Wildlife Area and the Arlington Wildlife Area. Robbins Butte Wildlife Area, encompassing 1,448 acres, is managed by AGFD for small game, such as mourning and white-winged doves, Gambel's quail, and various raptors. Cottonwoods, mesquite trees, and grain crops have been planted to provide habitat and food for small game. Additionally, AGFD manages approximately 6,700 acres of federal land known as PLO (Public Land Order) 1015, a portion of which lies within the planning area along the Gila River from Rainbow Road to Gillespie Dam.

The Sonoran Desert National Monument, managed by BLM, was designated as a national monument on January 17, 2001. The monument's total acreage is approximately 496,300 acres; however, only about 48,400 acres of the monument lie within the planning area. Rich in plant and animal diversity, the monument includes portions of the North and South Maricopa Mountains, the Sand Tank Mountains, and the Table Top Mountains. Saguaro cactus, palo verde trees, ironwood, and prickly pear and cholla cactus, along with various plants from the creosote-bursage plant community, are the dominant plant species. These plant communities support a wide variety of wildlife, including desert bighorn sheep, mule deer, javelina, mountain lion, gray fox, and bobcat. Over 200 species of birds are found in the monument, including bat, bird, owl, and raptor species. The Sonoran desert tortoise and the red-backed whiptail can also be found. Remnants of several important historic trails are found in the monument, including the Juan Bautista de Anza National Historic Trail, the Mormon Battalion Trail, and the Butterfield Overland Stage Route. Many significant archaeological sites are also found in the Sonoran Desert National Monument including rock art and scattered artifacts. The BLM will develop a management plan to guide best uses of the monument, while at the same time preserve the ecological diversity and historical significance of the area.

### **Other Regional Open Space**

Several other types of open space may be considered important, but are not necessarily dedicated or publicly accessible. Such open space includes agricultural land and designated open space in development master plans (DMPs). This type of open space is important for visual and aesthetic purposes. Explanations of these types of open space follow.

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<sup>11</sup> USDA Wilderness Act of 1964, <http://www.fs.fed.us/htnf/wildact>

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### *Agricultural Land*

Agricultural land benefits individuals who own and farm land, provides aesthetic benefit for people living in urban settings, and offers habitat and feeding areas for local wildlife. Farmland accounts for approximately 30% of the land in the planning area. As agricultural landowners struggle to protect the landscapes on which their livelihoods depend, efforts have been made in western Maricopa County to preserve agriculture through land use designation and preservation districts. However, owners of agricultural properties have the right to develop their land within the limitations of zoning, planning, and other applicable laws and regulations. Information on legislation concerning agricultural and conservation easements for preservation purposes can be found in the Economic Development element.

MAG's *Valley Vision 2025* plan emphasizes agricultural preservation. As such, Maricopa County could consider providing technical guidance to ensure future viability of agriculture by implementing the following techniques:

- Transfer development rights to other areas where development may be more appropriate.
- Encourage infill development and direct high intensity development into an urban service area.
- Establish land use buffers to mitigate the impact of agriculture and agricultural resources on non-agricultural development.
- Provide incentives to promote preservation of agricultural lands, such as clustered development or community-supported farms.

### *Scenic/Recreational Overlays*

Within the planning area, US Highway 80 is designated as a scenic/recreational overlay by MCDOT. This designation acknowledges the need to minimize impacts to, or preserve characteristics of, a road's environment or recognizes a road's importance as access to recreational facilities. Characteristics such as design speeds, right-of-way, cuts and fills, existing vegetation and viewsheds will be carefully analyzed for roads with scenic/recreational overlays.

### **Proposed Open Space**

*Eye to the Future 2020*, the Maricopa County Comprehensive Plan, distinguishes between publicly-owned proposed open space and privately-owned proposed open space. Proposed open spaces are intended to be planned and managed to protect, maintain, and enhance their inherent value for recreational, aesthetic, and biological purposes. Public access should be protected and preservation encouraged within proposed open spaces. It is important to note that all privately-owned and state trust land considered for open space conservation may be developed unless it becomes part of the public domain or is protected using other techniques that respect private property rights. Also, disposal of BLM land considered for open space conservation is authorized through sales and exchanges. Detailed information concerning land sales and exchanges can be found in the Land Use element under Public Land Ownership.

*Desert Spaces, An Open Space Plan for the Maricopa Association of Governments* adopted in 1995, considers areas for proposed open spaces in Maricopa County. Most conservation areas are identified to preserve, protect, and enhance mountains, foothills, rivers, washes, canals, cultural sites, Upland Sonoran Desert, and wildlife habitat. Environmentally sensitive areas of

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Upland Sonoran Desert, floodplains of major rivers and washes that provide valuable wildlife habitat, and the most scenic landscapes are included in the plan. *Desert Spaces, An Open Space Plan for the Maricopa Association of Governments* strives to protect important natural areas that support valuable wildlife habitat and allow wildlife to move freely between the larger preserves.

*Desert Spaces, An Open Space Plan for the Association of Governments* prioritizes areas for protection. Criteria used for prioritization include proximity to population growth, location of the greatest number of natural and cultural resources, existing land use, visibility, and overall importance for establishing an interconnected system. Sensitive open space in areas with rapid growth is considered higher priority than in slower growing areas. The plan assigns medium priority to the area along the Gila River from its confluence with the Salt River (in the planning area, from Rainbow Road to Johnson Road and from approximately Riggs Road to northwest of the Town of Gila Bend between Gila Road and Citrus Valley Road). The open space plan considers the Gila River and the Salt River to be the spine of the open space system. The plan also mentions the possibility of implementing trails along both the Buckeye Irrigation District canal and the Roosevelt Irrigation District canal. *Eye to the Future 2020* also recommends this area as proposed open space, incorporating a mix of publicly-owned land and privately-owned land.

In addition, El Rio, a proposed multi-purpose riparian preserve along the Gila River extending from the confluence of the Agua Fria River to State Route 85, has potential to be included as proposed open space in Maricopa County. The portion within the planning area would stretch from Rainbow Road to State Route 85.

MAG's *Regional Off-Street System (ROSS) Plan* was completed in February 2001. The purpose of the plan is to define potential corridors for off-street travel and assist communities in implementing an off-street system of paths and trails for non-motorized travel. Potential corridors identified in the plan include canals, flood control projects, power line corridors, railroads, and rivers, streams, and washes. Corridors identified within the planning area include the Buckeye Irrigation Company and Roosevelt Irrigation District canals, the FCDMC project, APS and SRP power line easements, and the El Paso Gasline Road. The ROSS Plan concludes with descriptions of different types of funding that might be used to create an off-street system of paths and trails.

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### WATER RESOURCES

Water resource planning is an important consideration in planning for future growth. All available water sources need to be considered in long-term, comprehensive water planning.

This water resources element includes an inventory of available water supplies in the planning area, as well as calculations of historical and projected water demand. Issues relevant to water use in the planning area and an analysis of available supplies for future growth are included. Additionally, segments describing practices for managing future water supplies and policy implications are included.

Renewable water supplies available in the State Route 85 Corridor planning area include CAP water, which comes from the Colorado River, surface water, and effluent. The use of each renewable source has certain obstacles, most importantly the ability to transport the water from the source to the user. Groundwater is used to a great extent for irrigation of crops and in dairy and feedlot operations.

#### **Water Supply Inventory**

Water supplies in the planning area include surface water, CAP water, groundwater, and effluent (treated wastewater). An overview of the available water supplies follows.

##### *Surface Water*

Surface water, as defined by state law, is "the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste, or surplus water, and of lakes, ponds and springs on the surface."<sup>12</sup> Surface water in the planning area can be found in the Gila River and to a lesser degree, the Hassayampa River. Water can be found in the Gila River during flood events and as perennial (i.e. continuing without interruption) flow from the wastewater treatment plant east of the planning area. Additionally, some of the flow in the Gila River comes from Salt River Project (SRP) water deliveries to Buckeye Water Conservation and Drainage District.

Flow in the Hassayampa River, which originates in the Bradshaw Mountains south of Prescott, sinks below the bed of the river approximately seven miles south of Wickenburg and rarely reaches the Gila River confluence during storm runoff. At times, however, irrigation return flow from Buckeye Water Conservation and Drainage District and Roosevelt Irrigation District does reach the Gila River via the Hassayampa River.

Surface water (treated wastewater and irrigation return flow) in the Gila River is used primarily to irrigate crops and by Palo Verde Nuclear Generating Station for cooling purposes. Water used to irrigate crops is drawn from the Gila River and delivered by Roosevelt Irrigation District, Buckeye Water Conservation and Drainage District and, south of Buckeye down to Gillespie Dam, the Arlington Canal Company. Gillespie Dam diverts river water into two irrigation canals, the Enterprise Canal and the Gila Bend Canal. Water flowing in these canals supplements groundwater used for crop irrigation south of the dam.

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<sup>12</sup> A.R.S. § 45-101(9)

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### *Groundwater*

Groundwater is defined by state law as "water under the surface of the earth regardless of the geologic structure in which it is standing or moving. Groundwater does not include water flowing in underground streams with ascertainable beds and banks."<sup>13</sup> The northern portion of the planning area is contained within the Phoenix Active Management Area and more specifically, within the West Salt River Valley Subbasin. South of Buckeye Hills ~~Park~~RECREATION AREA, the planning area is contained within the Gila Bend Basin.

Groundwater in the planning area is found primarily in basin-fill sediments. Three distinct water bearing geological units make up the Gila Bend Basin and the West Salt River Valley Subbasin. These units include an upper alluvial unit, a middle fine-grained unit, and a lower conglomerate unit. Groundwater is generally pumped from the middle fine-grained unit. Bedrock, consisting of various metamorphic and igneous rocks, underlies the basin-fill sediments. Bedrock has little groundwater storage or production capacity and is therefore not considered to be an aquifer.

In the alluvium, depth to groundwater near the Gila River is usually the shallowest, while depth is deepest near the mountain fronts. Measured yields from wells in the alluvial aquifer range from several hundred gallons per minute to over 2,000 gallons per minute. Most of the groundwater pumped in the Gila Bend Basin and the West Salt River Valley Subbasin is used for irrigation. Since groundwater development began in 1935 when several wells were drilled to supplement Gila River surface water diversions, an estimated 7,239,000 acre-feet of water (one acre-foot of water is equal to 325,851 gallons) have been withdrawn from the Gila Bend Basin through 1984. Groundwater pumpage in the Gila Bend Basin prior to 1998 averaged approximately 188,000 acre-feet annually. A decrease in cropped acreage in the area as of 1998 greatly decreased the annual amount of groundwater taken out of the basin. The most recent water resources information from the Arizona Department of Water Resources (ADWR) estimates that there are 27.6 million acre-feet of recoverable groundwater to 1,200 feet below land surface in the Gila Bend Basin. Of the total 1,280 square mile Gila Bend Basin, approximately 805 square miles will likely remain undeveloped as part of the Barry M. Goldwater Range or as part of the Sonoran Desert National Monument. The remaining 475 square miles are either privately owned (192 square miles), Indian lands (36 square miles), or under BLM or Arizona State Land Department management. Of the remaining area, 236 square miles or 50%, fall within the planning area. Most of the developable land in this area is presently within the Gila Bend town limits or has historically been used for agriculture.

The remaining 127 square miles of the planning area fall within the West Salt River Valley Subbasin in the Phoenix Active Management Area (AMA) and account for about 9.5% of the total subbasin land area. Total recoverable groundwater in the subbasin has been estimated at 59,000,000 acre-feet. This portion of the planning area has been historically used for agricultural purposes. Irrigation water for this area consists of groundwater or a mix of groundwater, treated wastewater, and surface water delivered by either Roosevelt Irrigation District, Buckeye Water Conservation and Drainage District, or Arlington Canal Company.

Other groundwater uses in the planning area include industrial and residential. This water is generally pumped from wells that are exempt from reporting annual water use to ADWR. Three water delivery companies serviced the Town of Buckeye and delivered a total of 1,534 acre-feet of groundwater in 2000, while the Town of Gila Bend had deliveries of 690 acre-feet in 2000.

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<sup>13</sup> A.R.S. § 45-101(5)

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The Gila Bend Power Generating Station and the Panda Power Plant propose to use an average of 20,600 acre-feet of groundwater each year.

Groundwater recharge occurs in the planning area during Gila River flow events, infiltration of irrigation and canal water, underflow from the Gila River and its tributaries, and direct precipitation. It is unknown how much recharge actually occurs.

The area in the vicinity of the Buckeye Water Conservation and Drainage District, as well as the Arlington Canal Company, has an extremely shallow depth to groundwater. This condition, known as waterlogging, may be caused by the natural drainage of the East and West Salt River Valley toward the confluence of the Gila and Salt rivers, by crop irrigation and canal seepage, and by effluent discharged to the Salt River from the City of Phoenix's 91<sup>st</sup> Avenue wastewater treatment plant. In some areas, the depth to water is less than 10 feet. In these areas, water must be drained into channels that divert and discharge groundwater and surface runoff to the Salt and Gila rivers.

Groundwater quality throughout much of the planning area is poor. Salinity in the waterlogged area north of the Gila River has worsened over time as salts delivered in irrigation water have accumulated. Deep percolation of water used to leach salts from the root zone has, in some cases, pushed salts further into the groundwater. Total dissolved solids (TDS) and fluoride generally exceed the maximum contaminant levels established by the United States Environmental Protection Agency. The recommended secondary maximum contaminant level for TDS is 500 milligrams per liter (mg/l). Along the Gila River between Gillespie Dam and Cotton Center, TDS values range from 1,200 mg/l to 4,290 mg/l. Northwest of the Town of Gila Bend, there is a perched water zone of poor quality water, high in sodium and chloride concentrations. This poor quality water probably is influenced by percolation of irrigation water and the presence of evaporite deposits.

### *Central Arizona Project Water*

The CAP, a multipurpose water resource development and management project, delivers Colorado River water into Maricopa, Pinal, and Pima counties. The CAP consists of a system of pumping plants and aqueducts that convey the river water from the Bill Williams River arm of Lake Havasu to the project service area. The aqueduct system runs for about 336 miles from Lake Havasu to its end southwest of Tucson. The CAP was constructed to deliver 1.415 million acre-feet annually of Arizona's allocation of 2.8 million acre-feet per year of Colorado River water. As much as 1.8 million acre-feet can be delivered through the CAP aqueduct if it is used at maximum capacity.

Originally allocated in 1983 to Indian users, municipal and industrial users, and agricultural users that requested allocations, CAP water is not available to everyone in Maricopa County. In the planning area, the Town of Buckeye has an original allocation of 25 acre-feet annually and the Water Utility of Greater Buckeye has an allocation of 43 acre-feet annually.<sup>14</sup> There is no other CAP allocation available within the planning area.

### *Effluent*

Effluent is used in and near the planning area primarily for crop irrigation, for maintaining riparian areas, and at Palo Verde Nuclear Generating Station for cooling purposes. The effluent

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<sup>14</sup> CAP SUBCONTRACTING STATUS REPORT, CENTRAL ARIZONA PROJECT. MAY 22, 2000 AND AUGUST 26, 2002

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supply in the planning area comes from the City of Phoenix's 91<sup>st</sup> Avenue Wastewater Treatment Plant, which has a capacity of 161.75 million gallons per day (mgd) (181,000 acre-feet). Palo Verde uses approximately 50,000 acre-feet of effluent per year. The Buckeye Water Conservation and Drainage District has contracted for 30,000 acre-feet of effluent per year through the year 2030 to irrigate crops. Arlington Canal Company has rights to 3,200 acre-feet of effluent per year. Additionally, the Roosevelt Irrigation District uses effluent to irrigate crops. The remaining effluent supply travels down the Gila River into the planning area from the City of Phoenix, the City of Goodyear, and the Town of Buckeye wastewater treatment plants. It is unknown how many acre-feet of effluent, combined with irrigation return flow, are diverted each year into the Enterprise and Gila Bend canals below the Gillespie Dam. Beyond this diversion, no effluent flows in the river.

### Water Supply Analysis

Total water supplies for the planning area were determined by combining CAP allocations (68 acre-feet annually)<sup>15</sup> and effluent production at the City of Phoenix's 91<sup>st</sup> Avenue Wastewater Treatment Plant minus 50,000 acre-feet of use by Palo Verde Nuclear Generating Station (effluent production varies from year to year and season to season; however, approximately 168,000 acre-feet are discharged in a year). Added to this was the amount of SRP irrigation water delivered to Buckeye Water Conservation and Drainage District (approximately 22,000 acre-feet per year) and a percentage of the recoverable groundwater in the Gila Bend Basin (5,000,000 acre-feet) and the West Salt River Valley Subbasin (5,600,000 acre-feet). The total water supply available in 2000 would have been approximately 10.7 million acre-feet. However, as previously mentioned of the 1,280 square miles in the Gila Bend Basin, approximately 800 square miles will likely remain undeveloped and will therefore experience limited water use. This limited water use would result in a greater quantity of groundwater availability for the 475 square miles of developable land in the basin. **Table 13** displays historical water demand in the planning area. **Table 14** shows projected water demand.

### Historical Water Demand

Water use data were obtained from U.S. Geological Survey (USGS) water reports, ADWR well location data and annual water use reports, municipal water delivery data, and irrigation district water pumpage data.

### Issue

#### *Riparian Habitat*

Preservation of riparian habitat depends in part on the continuous supply of groundwater or effluent available to maintain these areas. Effluent that has been discharged into the Gila River from the City of Phoenix 91<sup>st</sup> Avenue Wastewater Treatment Plant helps support riparian areas along the river. The Tres Rios riparian project south of the treatment plant might use more effluent through evaporation, plant use, and groundwater recharge. In this case, the amount of effluent available for power plants or downstream crop irrigation would decrease. In addition, as use of effluent increases in the future, riparian habitat along the river could decline. It may be necessary in the future to provide an alternative means of supplying renewable water sources for riparian areas in the planning region.

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<sup>15</sup> CAP SUBCONTRACTING STATUS REPORT, CENTRAL ARIZONA PROJECT. MAY 22, 2000 AND AUGUST 26, 2002

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**Table 13      Year 2000 Water Demand  
State Route 85 Corridor Planning Area**

User	Annual Amount
Gila Bend Basin Estimated Annual Irrigation Pumpage – 1999 (USGS Water Resources Data, Arizona Water Year 2000)	17,500 acre-feet (50% of total 1999 pumpage for Gila Bend Basin)
Non-exempt well pumpage data – 2000 (ADWR annual reports)	61,570 acre-feet
Exempt well pumpage calculation (1 acre-foot per year per well) – 2000 (ADWR well location data)	460 acre-feet
Town of Buckeye water delivery data – 2000	1,530 acre-feet
Town of Gila Bend water delivery data – 2000	690 acre-feet
Buckeye Water Conservation & Drainage District water pumpage data – 2000 (ADWR annual reports)	82,300 acre-feet
Roosevelt Irrigation District water pumpage data – 2000 (ADWR annual reports)	138,000 acre-feet
<b>Total</b>	<b>302,050 acre-feet</b>

**Table 14      Annual Projected Water Demand  
State Route 85 Corridor Planning Area**

User	Annual Amount
Gila Bend Basin Estimated Annual Irrigation Pumpage (USGS Annual Water Report)	17,500 acre-feet
Non-exempt well pumpage (ADWR well locations)	61,570 acre-feet
Exempt well pumpage calculation (ADWR well locations)	894 acre-feet
Town of Buckeye water delivery – 2010 population projected at 8,500 * 180 GPCD	1,715 acre-feet
Town of Gila Bend water delivery – 2005 population projected at 1,973; 2010 population projected at 2,082 * 311 GPCD	725 acre-feet
Gila Bend Power Generating Station, Panda Gila River Power Plant	20,600 acre-feet
Buckeye Water Conservation & Drainage District water pumpage	82,300 acre-feet
Roosevelt Irrigation District water pumpage	138,000 acre-feet
<b>Total</b>	<b>323,304 acre-feet</b>

Note:    1.9% population increase per year for projections in unincorporated areas  
           30% population increase over 2000 population for projections in Town of Buckeye  
           13% population increase over 2000 population for projections in Town of Gila Bend

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### Supplying Future Population

Total water supplies for future population in the planning area, based on present availability, are approximately 10.7 million acre-feet. Water sources include groundwater, surface water, effluent, and CAP water. The amount of effluent available could increase or decrease, based on the number of wastewater treatment package plants ~~operated by municipalities~~IN OPERATION north of the 91<sup>st</sup> Avenue Wastewater Treatment Plant. |

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### COST OF DEVELOPMENT

The Cost of Development element identifies policies and strategies that the county will use to require development to pay its fair share toward the cost of additional public facility needs generated by new development. It also includes an analysis of existing techniques that can be used to fund additional public services associated with new development, and policies to ensure that any funding mechanism bears a reasonable relationship to the financial burden on the County. The Cost of Development element is important to help ensure a fiscally responsible budget and an efficient use of taxpayer funds.

#### **Existing and Future Conditions: Demographics**

Demographic characteristics of planning area residents can affect revenue from sales tax, residential property taxes, vehicle license taxes, and user fees, as well as expenditures for services such as health care, education, social services, and various types of infrastructure. According to 2000 Census data, 57% of the planning area residents are between the ages of 18 and 54.<sup>16</sup>

Over the next several decades, the planning area population will not only become older, it will also become more diverse. According to 1990 and 2000 Census data, the percentage of people who classify themselves as being of Hispanic origin in the planning area increased from approximately 30% of the total area population in 1990 to approximately 40% of the total area population in 2000. During that same period, those people identifying themselves as White Not Hispanic decreased from approximately 60% of the population to approximately 50% of the total area population. For other ethnic groups, percentage of total planning area population remained about the same. Specifically, the proportion of Black Not Hispanic increased from 3% of the total population in 1990 to 4% in 2000. The American Indian population remained the same at 5% and the Asian Not Hispanic population decreased from 0.7% of the total population in 1990 to 0.3% in 2000 (**Figure 11** and **Figure 12**).<sup>17</sup>

Anticipating future economic conditions is important to allow forecasting of future county revenues and expenditures. However, anticipating economic activity beyond a few years is difficult due to unanticipated events and the cyclical nature of the economy. While not a detailed analysis, this report provides an overview of expected economic conditions.

#### **Existing and Future Conditions: Economics**

##### *Employment*

An evaluation of employment growth by sector reveals that the planning area should experience growth in most sectors for the foreseeable future. However, one sector that will likely experience a decrease is agriculture. While agriculture has been the mainstay of the planning area's economy, Maricopa County experienced a 9% decrease in total cropland from 1992 to 1997. Although data specific to the planning area are not available, it is likely that it has also undergone an approximately 9% decrease in total cropland.

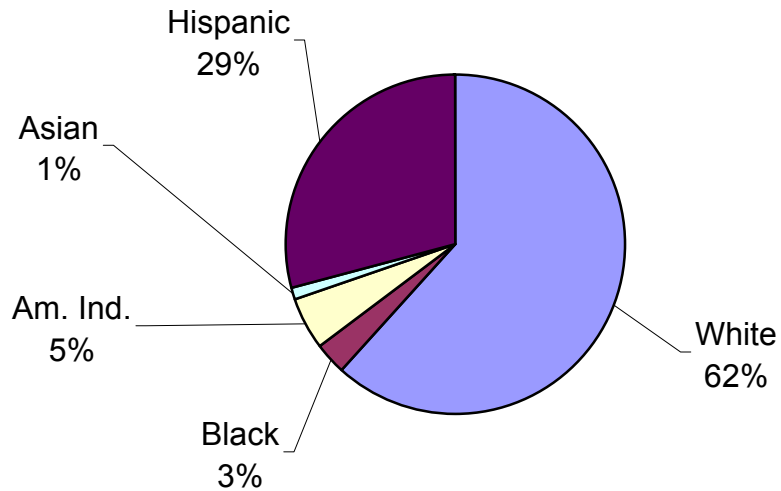
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<sup>16</sup> U.S. Census Bureau, 1990 and 2000.

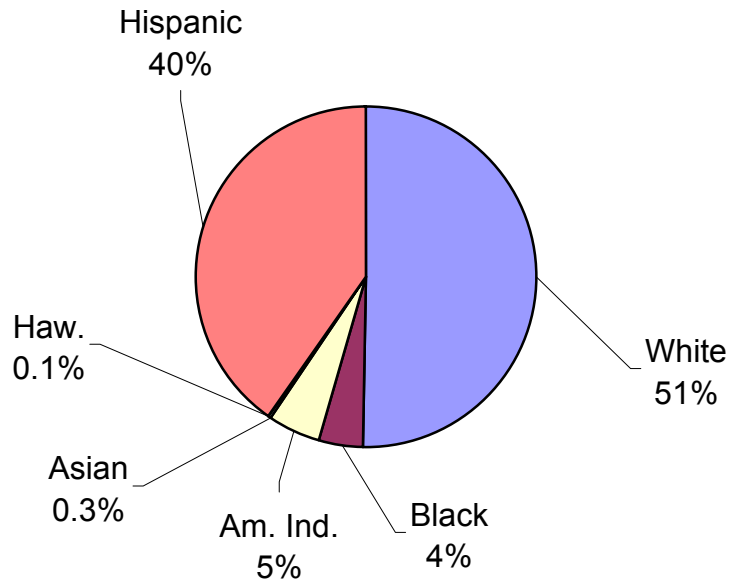
<sup>17</sup> U.S. Census Bureau, 1990 and 2000.

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**Figure 11**  
**1990 SR 85 Corridor Planning Area Population by Group**



**Figure 12**  
**2000 SR 85 Corridor Planning Area Population by Group**



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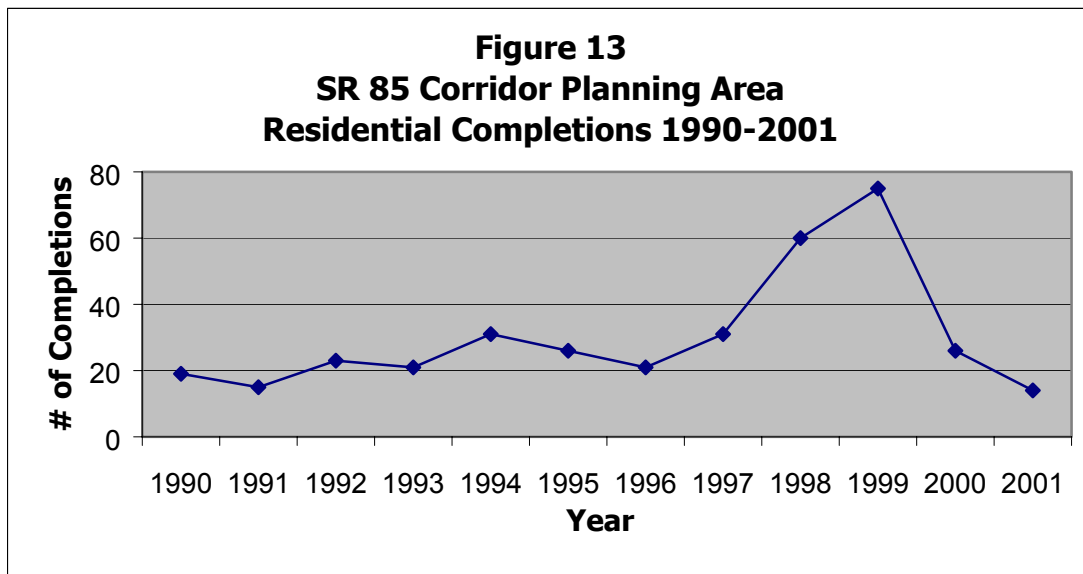
In the planning area, retail employment is expected to increase 39% from 1990 to 2020. Additionally, office employment is expected to increase 148% during the same time period. Industrial jobs and government jobs in the planning area should increase 34% and 59%, respectively, between 1990 and 2020. Most of the job growth in all sectors will occur in the Buckeye and Gila Bend areas.<sup>18</sup>

### *Personal Income*

Median household income in the planning area decreased by 2.1% from 1990 to 2000, which is considerably less than the 47% increase that was experienced in Maricopa County during the same period.<sup>19,20</sup> Projections of median household income in the planning area show an increase of less than 1% from 2000 to 2010. Projections for Maricopa County median household income are unavailable.

### *Construction and Real Estate*

Construction and real estate conditions impact public revenues because they are factors in both tax base expansion and future service requirements. The number of residential completions IN THE UNINCORPORATED PORTIONS OF THE PLANNING AREA (single family or manufactured homes built) increased during the late 1990s, but started decreasing again by the year 2000. **Figure 13** illustrates the number of residential completions IN THE UNINCORPORATED PORTIONS OF THE PLANNING AREA from 1990 through 2001. There have been no commercial or industrial facility completions during the 1990 through 2001 period IN THE UNINCORPORATED PORTIONS OF THE PLANNING AREA.



### **Issues and Considerations**

- As growth occurs in the planning area, the cost to service development further away from the central urban areas (Buckeye and Gila Bend) will increase.

<sup>18</sup> Update of the Population and Socioeconomic Database for Maricopa County, AZ, Maricopa Association of Governments. March 1993

<sup>19</sup> *Id.*

<sup>20</sup> US Census Bureau, 1990 and 2000

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- The planning area's aging population and workforce may eventually result in a decrease in revenues in the area, as expendable income decreases for those no longer able to work. Housing and medical costs may increase. Costs of programs that provide transportation to the elderly and disabled, as well as medical care that accommodates specialized health problems may increase. Indeed, the elderly and disabled may need to relocate if services are not made available to them at a reasonable cost.

### **Available Funding Techniques**

There are numerous techniques available to local governments to help fund additional public services necessary to serve future growth and development. The techniques are identified below. Additional information is available at [www.maricopa.gov/planning/compln/growing.asp](http://www.maricopa.gov/planning/compln/growing.asp) in the *Eye to the Future 2020* Cost of Development element.

- Property Tax
- Specialty/Industry Tax
- User Fees
- Bonds
- Lease Purchase Finance
- Dedication
- Development Agreement
- Intergovernmental Agreement
- Special District (Improvement District)
- Other Special Districts

### **Development Fee/Exaction**

The development impact fee is a technique that requires a developer in a specified impact area to pay a fee that is usually assessed on individual residential units or development acres. If a county adopts a capital improvement plan, it can assess an impact fee within a specified area to help offset the capital costs for providing water, sewer, streets, parks, and public safety services. Under state law, development fees are subject to several requirements:

- The development fee must result in a beneficial use to the development.
- Development fees must be deposited in a separate fund and interest earned must be used as a credit to the fund.
- Credits must be provided in the event of dedication of public sites and improvements.
- The amount of a development fee must bear a reasonable relationship to the cost burden imposed on the county for providing services.
- Development fees cannot be assessed in a discriminatory manner.

One important advantage of impact fees is that new services and infrastructure are financed by the development it serves rather than by the general community. Moreover, impact fees are a widely accepted method of sharing costs associated with new development. But while impact fees do present certain advantages, they may be difficult to implement on a consistent basis in unincorporated Maricopa County. A more in depth discussion is found in the *Eye to the Future 2020* Cost of Development report.

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### Current Cost Sharing Efforts

Although Maricopa County does not have an impact fee ordinance, there are ways in which new development is required to pay for and provide facilities and services associated with growth. A brief discussion of these efforts follows.

#### *Urban Service Area*

The Urban Service Area exists as part of *Eye to the Future 2020*, the Maricopa County Comprehensive Plan, and helps guide decision making to coordinate future development with urbanizing areas. It is based on the necessity for services and infrastructure to establish and maintain a high quality of life. The Urban Service Area doesn't exist as a designation on a map. Rather, it is based on the ability of new development to provide infrastructure and appropriate urban services to future residents as a particular location. This type of new development includes higher intensity uses such as residential densities greater than 1 dwelling unit per acre, commercial, industrial, and mixed use development. The unincorporated area of the State Route 85 Corridor planning area is not expected to see these higher intensity uses for the next ten years, although it is likely that they will occur in incorporated areas. If urban development is proposed in the planning area, the existence or future provision of the following infrastructure and services would have to be demonstrated:

- All necessary roads
- All necessary flood control structures
- Adequate utilities, including water, sewer, electric, and natural gas
- Adequate capacity and appropriate proximity to elementary, middle, and high schools
- Appropriate emergency service (police and fire) facilities and response time
- Adequate library facilities within appropriate proximity
- Adequate supply and proximity to parks
- Appropriate proximity to or supply of commercial and large-scale employment opportunities
- Appropriate proximity to hospital and emergency medical facilities
- Adequacy and proximity to multi-modal transportation facilities

#### *Development Agreements*

As identified earlier, development agreements are contractual arrangements between local governments and property owner(s) regarding land use and infrastructure. Development in the planning area could use development agreements, especially with respect to large, master planned communities, to ensure adequate road infrastructure is available for future residents. Development agreements are frequently based on phasing schedules and improvements are linked to allowable building permits.

#### *Stipulations*

Stipulations are conditions or restrictions placed upon the approval of entitlements granted to landowners. Stipulations cover a wide range of issues, including requirements for the services, infrastructure, and facilities associated with a particular project, and frequently set conditions for construction.

#### *Voluntary Contributions*

Developer donations and contributions are another way in which new development helps pay for infrastructure and service costs. Voluntary contributions are used for a variety of services,

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including monetary donations for regional parks and libraries, as well as property and monetary donations for schools and emergency service facilities. Contributions are beneficial because they are usually amenable to both public and private stakeholders.